

# The Mining Journal,

## RAILWAY AND COMMERCIAL GAZETTE

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 1758.—VOL. XXXIX.

LONDON, SATURDAY, MAY 1, 1869.

STAMPED .. SIXPENCE,  
UNSTAMPED.. FIVEPENCE

**M**R. JAMES CROFTS, STOCK AND SHAREDEALER,  
NO. 1, FINCH LANE, CORNHILL.  
(Established 1842.)

Mr. CROFTS transacts business in the way of PURCHASE or SALE of every description of stocks, but particularly BRITISH MINES, at net prices. All orders meet with the utmost punctuality, and advice given as to the nature and eligibility of INVESTMENTS when required.

**G**REAT ROYALTON.—The operations at this mine are being carried on with all dispatch. The engine is now full work, and all the necessary machinery is erected. The output of the great north lode rich has greatly increased the value of the mine. Rich tinstaff is being taken out of the engine-shaft, and there will soon be a batch of tin in the market. Capt. Parkyn writes: "The lode in the engine-shaft is a most splendid rich one—in fact, it is really the best work for tin I ever saw in all my experience." There is no better mine in Cornwall, presenting such a certainty of success. The shares are now 20s., and they must go very much higher. Particular attention is directed to the agent's report in this Journal.

**M**R. W. H. BUMPUS (late JOHN BUMPUS), STOCK AND SHAREDEALER, 44, THREADNEEDELE STREET, LONDON, E.C., in tendering his best thanks for past favours, begs to give notice that henceforth he will CONTINUE THE BUSINESS hitherto conducted by him on his brother's behalf.

W. H. B. trusts that the kind support and confidence accorded to his brother will be continued to himself, relying upon the promptitude with which all transactions have been carried through, and the reliability of information obtained for friends and clients as his recommendation for the future. Those who have favoured W. H. B. with a correspondence are the best able to judge of the success of his advice, without a lengthy advertisement enumerating the same.

**F**OR SALE, the following shares, free of commission:—  
55 Anglo-Argent., £15s. 15 Great Laxey, £19 6s 3d 100 Rossa Grande, 23s.  
100 Anglo-Brazilian, 28s. 3d 50 Great N. Laxey, 22s 6d 75 Sao Vicente, 6s. 6d.  
60 Chontales, 28s. 3d 100 Gen. Brazilian, 15s. 30 So. Condurrow, 35s 3d  
50 Carn Camborne, 9s 6d 30 Gonamena, 21s. 3d 15 St. John del Rey, £17  
15 Chiv. Moor, £3 18s 9d 10 Great Vor., £17s. 10 Tincroft, £17 1/2s.  
1 Devon Great Consols, 5 Herodfoot, £45 1/2s. 100 Taquaril, 11s. 3d.  
52 1/2s. 15 Marke Valley, £8 17s. 50 West Bassett, 29s.  
50 Don Pedro, £4 13s 9d 20 Mineral Bottom, £27s. 50 Wt. Drake Walls, 8s 3d  
premium. 30 New Lovell, £2 2/3s. 50 Wt. Chiverton, £49 1/2s.  
100 Drake Walls, 18s. 9d. 50 No. Tresekerry, 14s 9d 50 West Godolphin, 28s.  
20 East Caradon, £7 3/4s. 50 Levant, £27s. 50 Mary Ann, £15 1/2s.  
15 East Lovell, £8 2s 9d 50 Prince of Wales, 24s 3d 20 Wheal Uvy, £23s.  
25 East Carn Brea, 100 Princess of Wales, 3s 3d 25 Wheal Crebor, 11s. 3d  
35 East Gronville, £4 17s. 50 Pstarena, 21s. 3d. 100 Worthing, 6s.  
100 Frank Mills, £4. 75 Port Phillip, £1 18s 9d 2 Wheal Seton, £6 1/2s.  
20 Frank Mills, £6. 10 Penhalls, £6. 50 Yudananmutana, 33s 9d

**M**R. WILLIAM WARD, STOCK AND SHAREDEALER, NO. 29, THREADNEEDELE STREET, LONDON, E.C.

**M**R. THOMAS SPARGO, STOCK AND SHAREDEALER, 224 & 225, GRESHAM HOUSE, OLD BROAD STREET, LONDON, E.C.

**J**OHN RISLEY, (SWORN) STOCK AND SHAREDEALER, 48, THREADNEEDELE STREET, LONDON, E.C.  
Bankers: London and Westminster, Lombury.

**M**R. J. B. REYNOLDS, STOCK AND SHAREDEALER, ETHELBURGA HOUSE, BISHOPSGATE STREET WITHIN, E.C.  
Established Eleven Years.  
Bankers: City Bank, London, E.C.

**M**R. Y. CHRISTIAN, STOCK AND SHAREDEALER, 11, ROYAL EXCHANGE, E.C.,  
Bankers: Bank of England.

**M**R. JAMES HUME, STOCK AND SHAREDEALER, 74, OLD BROAD STREET, LONDON, E.C.  
Established Twelve Years.

Has BUSINESS in the following mines, at close market prices:—  
50 Prince of Wales, 24s 6d 50 Creber, 11s. 50 West Bassett, 29s.  
10 Great Vor., £17 1/2s. 50 East Grenville, £47s. 30 New Lovell, £23s.  
50 Chontales, 28s. 3d 50 Wt. Chiverton, £49 1/2s.  
20 Wt. Drake Walls, 8s 6d 10 East Caradon, £7 3/4s. 50 Don Pedro, £45 1/2s.  
20 Uny, £3 18s 9d 50 So. Condurrow, 35s 3d 10 Taquaril, 35. 9d prem.  
BUYER of South Condurrow, for cash or account.

J. HUME's "Circular" for April is now ready, and should be consulted by all before investing. Bankers: The London Joint-Stock Bank.

**M**R. T. ROSEWARNE, 81, OLD BROAD STREET, LONDON, E.C.

T. R. has BUSINESS in the following mines, at close market prices:—  
Bedford Consols. East Carn Brea. South Condurrow.  
Bedford United. Frank Mill. West Drake Walls.  
Drake Walls. Frontine and Bolivia. West Loverton.  
Devon Consols. New Lovell. West Grenville.  
Don Pedro. North Tresekerry. West Bassett.  
East Grenville. Prince of Wales. Wheal Crebor.  
East Caradon. South Herodfoot. Wheal Uvy.

T. R. can recommend three mines safe for a great rise this year; parties wishing to know particulars, can see the reports at my office from 10 to 4 o'clock, and not only the reports, but the plans and sections of the properties, and have my opinion thereon, as I have inspected and reported upon the mines I recommend several times.

CHIVERTON MOOR.—This mine has much improved in the old lode. Shares should be bought at the present low price—£3 to £4.

PRINCE OF WALES, 22s. to 25s.—The sale of ore last week was a good one; but can they keep it up? I think not.

Money advanced to any extent on good mining shares.

Office hours Ten to Four. Bankers: Bank of England.

**M**R. E. J. BARTLETT, STOCK AND SHAREDEALER, NO. 30, GREAT ST. HELEN'S, LONDON, E.C., has SPECIAL BUSINESS in West Godolphin, Summer Hill, North Pool, South Condurrow, South Merlyn, New Lovell, North Levant, Bryn Gwlog, East Rosewarne, East Carn Brea, North Tresekerry, Wheal Agar, Caldbeck Fells, East New Lovell, and St. Just Amalgamated.

Holders of Stock difficult of sale in the open market may find purchasers on application to the above.

\*\* SOUTH MERLLYN.—E. J. B. directs special attention to this mine. At present prices the shares are specially recommended, and should be bought at once.

\*\* NORTH POOL.—Special attention is directed to the report published in these columns.

BUYER of West Godolphin, Wheal Agar, Great South Chiverton, North Tresekerry, and Caldbeck Fells shares.

**M**RS. WILLIAM MARLBOROUGH, 1, GREAT ST. HELEN'S, BISHOPSGATE STREET, LONDON, E.C. (Established 14 years), has FOR SALE the FOLLOWING SHARES, at net prices:—

50 Anglo-Brazilian, 8s 3d 50 Gen. Brazilian, 5s 3d. 2 Van, £26 1/2s.  
15 Caldbeck Fells, 14s 6d premium. 5 Wh. Mary Ann, £15 1/2s.  
20 Chontales, 28s. 3d. 20 Gt. No. Laxey, 22s. 40 Wh. Creber, 10s. 6d.  
10 Chiverton, 60s. 20 No. Levant, £10 6s 2d 25 Wh. Grenville, 28s 9d.  
15 Chiv. Moor, £3 18s. 30 No. Tresekerry, 15s. 9d. 1 Wheal Seton, £60 1/2s.  
10 Don Pedro, £4 13s 9d 25 Prince of Wales, 22s 6d 30 West Godolphin, 29s.  
30 Drake Walls, 18s. 3d. 30 So. Condurrow, 35s 3d 2 Wt. Chiverton, £49 1/2s.  
10 East Caradon, £7 3/4s. 30 So. Condurrow, 35s 3d 15 Wheal Uvy, £23s.  
10 East Lovell, £8 2s 9d 10 Great Vor., £17s. 10 Chontales, 28s. 3d.  
10 E. W. Reeth, 18s. 9d. 10 St. Just Amal., 15s. 5 East Lovell, £8 1/2s.  
5 Tincroft, £8 1/2s. 20 West Bassett, 29s. 6d. 1 Wheal Chiverton, £23.  
50 Taquaril, 3s. 6d. prem. 50 Taquaril, 3s. 6d.

SOUTH MERLLYN.—W. M. begs to direct the special attention of investors to the report on this mine in to-day's Journal, and advises the purchase of shares at once.

**M**RS. GEORGE BUDGE, STOCK AND SHAREDEALER, NO. 4, ROYAL EXCHANGE BUILDINGS, LONDON, E.C. (Established 20 years), is a SELLER at net prices of:—

35 Van, £26 1/2s. 30 Prince of Wales, 24s. 6d. 10 Wheal Chiverton, £23. 50 Creber,  
11s. 9d.; 5 Minera; 20 East Trumpet, £2 18s.; 30 Pedan-dreia, £25 16s. 3d.;  
80 Sparnon, 29s.; 5 Great Vor., £17 1/2s.; 65 West Tremayne, 8s. 9d.; 50 South Condurrow, 35s.; 45 East Grenville, £4 18s. 9d.; 30 East Rosewarne, 3s. 2d.; 10 North Levant, £11; 100 Tin Valley; 3 West Chiverton, £20; 45 Caldbeck Fells, 18s.;  
100 West Prince of Wales, 6s. 3d.; 60 West Bassett, 28s. 9d.; 10 West Caradon;  
100 Levant Consols; 2 Wheal Seton, £64 1/2s.; 85 Great South Chiverton; 90 North Jane, 11s. 9d.; 100 East Chiverton, 3s.; 10 Nanglais; 20 Don Pedro, £5 1/2s.;  
15 Anglo-Brazilian, 8s. 9d.; 80 General Brazilian, 14s. 6d.; 50 Port Phillip, 35s.;  
50 St. John del Rey; 200 Sao Vicente, 6s. 9d.; 65 Frontino and Bolivia, 18s. 6d.;  
100 Taquaril, 11s.; 225 Worthing, 6s. 9d.

**C**ORNISH AND FOREIGN MINES—  
TO SHAREHOLDERS AND OTHERS.

PETER WATSON'S "WEEKLY MINING CIRCULAR AND SHARE LIST—SYNOPSIS OF CORNISH AND DEVON MINES," of Friday, April 30, No. 630, Vol. XL, price 6d. each copy, forwarded on application, contains information on the following mines:—

The Great Rock. West Chiverton. East Seton.  
Lisbane. Foxdale. East Lovell.  
Minera. Providence. Trumpet Consols.  
Wheal Mary Ann. Don Pedro. West Caradon.  
Gwymwith. Great Laxey. Wheal Trelawny.  
Herodfoot. Great Vor. Devon Great Consols.  
East Darren. West Great Work. Great Western.  
Owner Erfin. North Wheal Crofty. Frontino and Bolivia.  
With Remarks on the Tin Trade, Rise in the Price of Straits Tin, &c.

**M**R. T. P. THOMAS, MINING AGENT,  
77, OLD BROAD STREET, LONDON.  
SPECIAL BUSINESS in the Lisburne Mines, Minera, South Condurrow, West Godolphin, and East Carn Brea.

T. P. THOMAS is PREPARED to RECEIVE APPLICATIONS from parties disposed to join in a FIRST-CLASS LEAD MINE in CARDIGANSHIRE.

**M**R. CHARLES THOMAS,  
MINING AGENT, GENERAL SHAREDEALER, AND AUCTIONEER  
3, GREAT ST. HELEN'S, LONDON, E.C.  
BUSINESS in South Condurrow, North Tresekerry, West Chiverton, Drake Walls, Prince of Wales, and Wheal Mary Ann.

**D**IVIDENDS 5 and 10 to 20 PER CENT.—  
For Safe and Profitable Investments.

Read SHARP'S INVESTMENT CIRCULAR (post free). It contains all the best paying and safest Stock and Share Investments of the day.

The MAY NUMBER now ready, It contains reliable information upon the various Stock and Share Markets, with Prices, Dividends, &c., &c.

CAPITALISTS, SHAREHOLDERS, TRUSTEES, INVESTORS, EXECUTORS Will find the above Investment Circular a safe, valuable, and reliable guide.

GRANVILLE SHARP AND CO., Stock and Share Dealers, Offices, 32, Poultry, London, E.C. Established 1852.

Bankers: London and Westminster, Lothbury, London, E.C.

N.B.—All Stocks and Shares bought and sold at the closest market prices net.

**M**R. W. H. LANONY, (Late of Kennall Gunpowder Company)

GUNPOWDER MERCHANT,  
TRURO.

**M**RS. THOMAS THOMPSON, MINING OFFICES,  
12, OLD JEWRY CHAMBERS, LONDON, E.C.

HOLMBUSH AND KELLY BRAY UNITED.—Mr. THOMPSON has secured the offer of a certain number of shares in this valuable property for sale at market prices. These shares should be purchased at once, as they cannot fail to become very valuable. Kelly Bray is now making good profits, and the engine at Holmbush is to be started on Thursday next, after which the returns will be very considerably increased.

**B**ARTLETT AND CHAPMAN have REMOVED their STOCK AND SHARE BUSINESS from Bucklersbury to No. 36, CORNHILL, E.C., where they have transactions in every description of British, Colonial, and Foreign Securities. They have SPECIAL BUSINESS in some first-rate TIN MINES, and they especially recommend the purchase of TIN VALLEY, LOVELL CONSOLS, and GREAT SOUTH CHIVERTON, the shares in which will certainly increase 100 or 200 per cent. in their market value within a short time, as they are closely approaching the payment of good dividends.

Some of the mines they were recommending a few months ago have since then advanced 30, 40, 50, 70, and 120 per cent. respectively.

36, Cornhill, London, E.C.

**B**ARTLETT AND CHAPMAN'S "INVESTMENT CIRCULAR AND FINANCIAL RECORD".

(Published on the first Wednesday in each month)  
Comprises—A Comprehensive Review of the Stock, Share, and Money Markets for the preceding month; an Enumeration and Comparison of the Whole Circle of Investments; and Valuable Suggestions for Purchase or Sale.

36, Cornhill, London, E.C.

WALTER TREGELLAS, 122, BISHOPSGATE STREET WITHIN, LONDON, E.C., DEALS in all STOCKS AND SHARES, either for cash or for the fortnightly settlement.

SPECIAL BUSINESS in the following gold mines:—  
Don Pedro. Rossa Grande. Anglo-Brazilian.  
Taquaril. General Brazilian. Sao Vicente.

W. T. recommends the shares of the Van Lead Mine, in which he is in a position to do business.

Bankers: The Alliance Bank.

**M**R. J. H. COCK, STOCK AND MINING SHAREDEALER, 74, OLD BROAD STREET, LONDON, E.C.  
Fifteen years' experience in Cornwall and London.

BUYERS AND SELLERS OF BRYNPOSTIG SHARES should apply to—  
G. R. ROSS AND CO., 26, NICHOLAS LANE, LOMBARD STREET.

LEAD MINES AS AN INVESTMENT.

On the 6th of May will be published, by Mr. J. H. MURCHISON, F.R.G.S., THE "LEAD MINES OF CARDIGANSHIRE AND MONTGOMERYSHIRE," districts comprising VAN, DYLIFF, LISBURN, EAST DARREN, SOUTH DARREN, and other important Mines. Price 6d. With a MAP, showing the position of the different Mines, arranged and drawn specially for this Pamphlet. Price 1s.

In the meantime, orders for early copies may be sent to Mr. MURCHISON, at his office, 8, Austinfriars, London; and information will also be given relative to Mines in the above districts to anyone wishing and applying for the same.

**M**RS. EDWARD BREWIS, STOCK AND SHAREDEALER, NO. 34, OLD BROAD STREET, LONDON, E.C., has BUSINESS, for cash or account, in all the various gold and silver, copper and lead, and especially tin shares, at advantageous prices. Investors who are in unmarketable stock may find purchasers.

Bankers: The Alliance Bank, London, E.C.

**M**R. J. N. MAUGHAN, STOCK AND SHAREBROKER  
(Member of the Stock Exchange),  
No. 2, COLLINGWOOD STREET, NEWCASTLE-ON-TYNE,  
Bankers: Messrs. Lambton and Co.

**M**R. THOMAS THOMAS,  
ASSAYER, &c., COPPER ORE WHARVES, SWANSEA.

SOUTH SWALEDALE LEAD MINING COMPANY.—A FEW SHARES FOR SALE in this MINE. Last dividend, lately declared, 2s. 6d. per share.  
Apply to Mr. E. J. BARTLETT, 30, Great St. Helen's, London, E.C.

**B**LAEN-Y-GLYN LEAD MINE.—TO BE SOLD, ONE MOIETY of this PROMISING SETT, near LLANGYNOD and OSWESTRY.  
Apply to THOMAS HUGHES, Esq., Plasnewydd, Llanllin, Oswestry.

**C**OKE FOR SALE.—ONE HUNDRED TONS OF COKE PER week, free from sulphur, and will not clinker.  
Apply, BRYN-YR-OWER COLLIERY

## Original Correspondence.

## THE MINES REGULATION BILL.

The Bill which was last week introduced into the House of Commons by Mr. BRUCE for the better regulation of mines has already been judged by those most interested, and condemned alike by coal-owners and workmen. We may, therefore, safely predict, from the opposition which awaits it, that there is not the slightest chance of its being carried in anything like its present shape. There appears to have been something like an attempt to conciliate both sides, but the effort has been remarkably unsuccessful. The Bill is, in a great measure, the result of the labours of the Committee on Mines which was appointed by the House of Commons towards the end of 1865, and sat until the close of the session of 1867. The Committee, of which Mr. NEATE was Chairman, elicited a vast amount of valuable information, about fifty witnesses having been examined on both sides. The credit of the appointment of the Committee, we may say, is due to the Miners' Association of Great Britain, who presented petitions, signed by many thousands of miners, asking to have certain alterations made in the existing Acts for the regulation of mines, for the purpose of ensuring the greater safety of all persons working in them. Of the many clauses constituting the Bill, some of them are of no material consequence, but there are others which are of the gravest importance, but drawn up in a manner which renders their acceptance all but impossible.

The extension of the Workshops Regulation Act to all persons engaged in operations on the surface of all colliery works is anything but satisfactory, and will be found all but impracticable. In fact, the Act itself has been found to work in anything but a satisfactory manner, even in those communities for which it was supposed to be pre-eminently adapted; so that in what way it is suited to men engaged in colliery operations we are at a loss to discover. The clauses to which the workmen attach the most importance are those relating to the weighing of coal on the pit bank, and the appointment of additional Inspectors, and which we propose to take in the order given.

At present what is known as a check weighman was a person appointed and paid by the miners to see that each car on reaching the pit bank was properly weighed. But by the existing Act the person so appointed must be a miner working at the colliery in which he was to act in the capacity of weighman. The men asked to have a clause inserted in the new Bill, providing that any duly qualified person could be employed as check weighman, provided he did not interfere with the working of the mine. The demand has not been conceded, and why it should still be held necessary that the person so engaged should be taken from "the persons for the time being employed at such mine" is by no means apparent. We may, therefore, expect to have some discussion on the clause, should there be any disposition to retain it; but as an act of fairness, there is not much likelihood of many persons standing up in its defence.

The appointment of additional Inspectors of Mines has been discussed at great length for some years past, and there has been a strong feeling, looking at the many fearful catastrophes which have taken place since the appointment of the Committee, that the present staff of twelve is insufficient. The alteration—if alteration it can be called—is vague and unsatisfactory, and the Home Secretary has entirely ignored the decision of the Committee, and adopted a clause which he himself proposed as a member of it, but on which he was defeated. When in Committee, Mr. BRUCE proposed—

"That it is expedient from time to time to increase the number of Inspectors, so as to keep pace with the increase in the number and extent of collieries, and to enable them to perform their duties adequately; but it is not expedient to appoint a lower class of Inspectors than the present."

**Asian amendment.** Mr. LIDDELL moved that the clause should read:—

"That the present staff of Inspectors should be increased, with a view to more frequent inspection; but it is not desirable that men of a lower standard than those at present selected should be employed in the discharge of this important duty."

The numbers being equal, the Chairman gave his vote in favour of Mr. LIDDELL's amendment, which was accordingly agreed to. The clause in the Bill, however, simply gives the Secretary of State for the Home Department the power of appointing Inspectors. That additional Inspectors are necessary is fully borne out by the views of Mr. C. MORTON, a gentleman of vast experience, and until a comparatively recent period one of Her MAJESTY'S Inspectors of Mines, and admitted to be a very high authority on the subject. In a report to the Home Secretary he says—

"I venture, with due deference, to represent to you that twelve Inspectors are too few to carry out efficiently the practicable and reasonable intentions of the benevolent originators of the Mining Act, seeing that there are now more than 3200 collieries in Great Britain. The West Riding of Yorkshire, for instance, ought to be divided into two districts, and have two Inspectors, as it contains more coal mines than any other district in the kingdom." Indeed, the necessity of additional Inspectors, and which on several occasions we have urged on various grounds, has been abundantly proved, and it certainly does appear somewhat singular that the petitions on the subject, and the decisions of the Parliamentary Committee, have been ignored.

One of the most impracticable clauses in the Bill is undoubtedly that under sec. 15, and which requires that mines shall be divided into districts, or panels, each of which is not to employ more than 100 men. Now, such a system could be initiated and carried out at new collieries, and has, in fact, been adopted at several, but it is very different with regard to those which have been laid out for many years, and with miles of workings on all sides. With them it is practically impossible, and if the clause is carried out it would be the means of partially closing a very large number of collieries in the North of England, Yorkshire, and other parts of the kingdom. Indeed, we should like to hear from Mr. BRUCE how this part of his Bill is to be carried out, and we have very little doubt but what colliery owners generally will look forward to the same information with no ordinary interest.

The clauses having for their immediate object the prevention of fatal accidents appear to be rather loosely drawn up. Of those the most material is the one relating to falls of roof, deaths resulting from which are more numerous than from any other cause, not even excepting explosions, for we find that in 1867 no less than 449 persons were killed by them. Sec. 2 provides that no money shall be paid or stopped for the cost of timber used in propping. Now, in most districts timber is paid for by the owners, so that in reality that has very little to do with the fatalities arising from falls of roof or coal. On the contrary, the opinions expressed by the Inspectors of Mines point to the recklessness of the miners themselves as the cause, and who to save a little time do not put the props up at sufficiently short intervals. Writing on the subject, Mr. BROUH says—

"We have roofs often so treacherous as to demand very decided remedial remedies; roofs that to look up to and try with pick, sledge, or other tool sound like thick cast-iron, or like rock of vast depth; yet they are often so replete with concealed 'slips,' or 'baulks,' 'well-moulds,' 'joints,' and 'grimes,' that, perhaps, after trying or sounding, a fall, without the slightest warning in the world, will take place. Under those circumstances, I cannot do less than urge that the rules be so far changed as to lead to the setting up of much more timber. If the place, on inspection by workmen or deputies, looks as if one prop would do, put up two or three at once; if it appears to require two, put up three; and if it appears to require three, put up half-a-dozen."

We may, therefore, reasonably conclude that the mere provision that the men in some few districts shall not pay for the timber used for propping will in no way lessen the fatalities from the falls of roof.

A rather singular alteration is made in the first rule of sec. 10 of the 23d and 24th Vic., but for what object is not easily seen. Under the old Act the rule is as follows:—

"An adequate amount of ventilation shall be constantly produced in all coal mines and ironstone mines to dilute and render harmless noxious gases to such an extent that the working places of the pits, levels, and workings of every colliery and mine, and the travelling roads to and from such working places, shall, under ordinary circumstances, be in a fit state for working and passing therein."

In the new rule the words *under ordinary circumstances* are omitted, and we have a rather singular rider attached. It is—

"Provided that the Court may dismiss any charge for acting in contravention of this rule, if satisfied that all reasonable precautions have been taken by the owner, agent, or person who is so charged." This, we fancy, will not be taken as at all satisfactory, seeing that the question as to the ventilation may at times be left for the decision of magistrates.

Having thus gone through the most important details of the new Bill, we can only reiterate our statement that it will give anything but satisfaction. Colliery owners have already pronounced a most decided opinion against it, and Mr. NORMANSELL, as the represen-

native of the working colliers, and who took a leading part in obtaining the Committee, has denounced it in strong terms, remarking that the working colliers "could make a better Bill themselves." To pass it without making very great alterations indeed will be, we firmly believe, impossible, and Mr. BRUCE will find that his Bill has only raised up opponents from all sides and quarters.

## MINES INSPECTION ACT.

SIR.—On the whole, the regulations proposed under the new Bill appear to be of a practical and reasonable character. The requirement that the barometer and thermometer should be placed above-ground in some conspicuous position near the entrance of the mine is a valuable one where mines are of a fiery character. Any regulation that directs the attention of the mine agent to the niceties of atmospheric observation is useful, as tending to produce exactitude and carefulness, the advantages of which will crop out in many unexpected quarters of mine management.

It might, however, be desirable it should be made imperative upon the Inspector, whenever he makes a complaint to the Secretary of State as to any breach of rules upon which he intends to found an application for authority to take proceedings, to send by the same post a copy of such complaint to the person or persons against whom he purposes to proceed. The practice hitherto has been for the Inspector to conduct correspondence of that description wholly without the knowledge of the person against whom a complaint is urged, and this may, unknown to him, be going on for a period of six months, and he is only made aware of his having committed any offence contrary to the provisions of the Mines Inspection Act a few days before the expiration of that period, beyond which time no proceedings will be of effect. The result is that, while the Inspector's evidence rests upon notes taken at the time, the defendant has to get up his case with the disadvantage of an interval of nearly six months between the alleged offence and the first intimation of proceedings. This in many cases practically amounts to a denial of justice, and is a grievance which should certainly be remedied under the new Act. A provision of this sort would also, to some extent, be a check on enthusiastic Inspectors, for they would feel a greater sense of responsibility upon them with the knowledge that each complaint would be subject to a prompt investigation on the part of the party against whom the complaint might be lodged. It would also encourage promptitude on the part of the mine owners and agents, who would feel that the only chance of mitigating penalties in well-founded cases of infringement of the law would be by immediate compliance with the provisions of the statute. Likewise, it would remove a sense of irritation frequently created by the operation of the Inspection Act, which, from the delay between the offence and the summons, presents the Act as wearing almost a persecutory front. It is highly expedient that any ground for such a conviction on the part of the public should be removed at once.

As to individual districts, in order that it may be fully applicable to the South Staffordshire and East Worcestershire coal fields, the word "mine" should have an interpretation widened to the extent of "colliery." In many cases in that part of the world there are eight or ten pits working within an area of 60 or 70 acres. In such a case one thermometer, for instance, and barometer would be sufficient, if conveniently situated for inspection. Reasonable discretion should be allowed on this point. The fewness of these instruments in that locality will be less important there than in most others, because of the generally non-fiery character of the strata. In that district the double-shift and panel systems will not apply extensively, as there are but few pits at work in the district employing over a hundred hands.

The Bill merits all the attention it is receiving, and it is to be hoped that, by an absence of hasty legislation, further opportunity will be afforded for a due consideration of the several clauses.

## A COLLIER.

## GEOLOGICAL NOTES ON COAL—NO. III.

SIR.—I think we are now prepared to consider another question, What is coal? If I must answer that question at once, I would simply say, coal is mineralised vegetable matter. To many people who have not paid much attention to this subject it may appear a source of much surprise how such a hard substance as coal could have been formed out of any kind of vegetable matter at all. One can easily imagine a man taking a piece of coal in his hands and reasoning thus:—"You say that this was once a mass of vegetation. I very much doubt that. I can easily understand that peat and lignite had such an origin, but in the case of common coal I cannot detect the slightest trace of vegetable fibre."

That is the way in which some people reason on this subject, but the reasoning is based on narrow premises. They flatter themselves that they can see everything, and with that assurance they leap to the conclusion that that which does not fall within the range of their vision has no reality. Now, I grant that to all ordinary observation coal presents no marks of a woody structure, but still there are several reliable reasons which place its vegetable origin beyond a doubt in the estimation of the geologist. What common eyes cannot see, microscopic eyes can detect; and so, in this case, thin slices of coal have been placed beneath the elucidating power of the microscope and made to yield undoubted evidence of its vegetarian history, such as spiral vessels, and other marks of vegetable tissue. Then, some geologists have discovered, by means of microscopic investigation, "yellow bituminous particles in the coal," which are believed to be the chemical result of the decomposition of vegetable matter.

The combustible properties of coal also, as well as other characteristics, on which we cannot dwell, clearly point to the same conclusion.

But suppose it is granted that coal originated from plants, we have next to enquire how this marvellous change has been produced. Now, we may have no doubt as to the vegetable origin of coal, but as to the mode in which the conversion has been effected, that is by no means so evident, inasmuch as the chemist has never yet been able to give us the same result in his laboratory. But if the chemist has never been able to convert vegetable matter into coal, he can materially help us to understand some steps of the wondrous change. He has found by careful analyses that vegetable matter and coal are composed of the same elements, differing only in the proportions in which they are combined. There are four organic elements—carbon, hydrogen, oxygen, and nitrogen; and about eight or nine inorganic elements—the latter being found in the ashes of wood and coal when burnt. But the chemist will show you that there is a larger measure of carbon, hydrogen, and oxygen in coal than in living vegetable matter. The following analysis indicates the respective quantities of carbon, hydrogen, and oxygen in 100 parts of wood, peat, lignite, common coal, anthracite, and graphite:—

	Carbon.	Hydrogen.	Oxygen.
Wood	48 to 54	6 to 10	35 to 45
Peat	56 to 66	5 to 9	18 to 38
Lignite	56 to 70	3 to 7	13 to 27
Common coal	70 to 92	2 to 6	1 to 8
Anthracite	74 to 93	1 to 4	0 to 3
Graphite	80 to 98	—	—

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The present mode of working the Middleton seam is by stalls of 50 yards width, with a pillar of coal left between the stalls, 22 yards thick; in the middle of each pillar a bora is driven in advance of the stalls, with cross-holes at intervals of 30 yards, through which the coals are conveyed from the stalls to the horse-roads. The stalls are driven east and west, but westward is preferred, as the inclination of the backs enables a greater depth of holing to be obtained westward. The roof is supported by two rows of chocks along the working faces, and one alongside the going roads; the roof is not a strong one—it is subject to slips. Very little support for the roof is obtained by pillarings, but probably leaving pillars of coal, and putting in chocks, might be superseded to a great extent by building pillars with suitable stone obtained from the waste or gob.

The coal produces little gas, but safety-lamps are used entirely by the workmen. Ventilating furnace, 13 ft. by 6 ft., supplied with fresh air; the upcast is divided at the bottom by a wall, to prevent the contact of the return air with flame. Drawing coal continues from 6 A.M. till about 4 P.M.

#### SECTION OF LITTLE SEAM AT WEST ARDSLEY.

1.—Hard coal ..... 0 f. 11 in.  
2.—Soft coal ..... 1 0 ..... Hole at the bottom of this.  
3.—Bottom ..... 0 7 ..... Mixed with pyrites.

Total ..... 2 f. 6 in.

The small of this seam is used for coking, and the top or hard for iron-smelting purposes. This seam is worked at present by hand-power; but coal-cutting machines are intended to work it shortly, specially constructed for the seam. The Cannel seam is worked in conjunction with fire-clay. The Cannel is about 1 ft. 6 in. thick, but part of this is inferior in quality, and is used for oil-making, the good being used for gas-making. Fifty round coke-ovens are built, with a short chimney to each, charged at the door; more ovens are being built. Fifty retorts are erected for the extraction of oil from the inferior description of Cannel: the oil is refined on the spot, and sold for purposes of illumination. Fire-bricks are made here; the bricks are moulded and pressed by machinery.

The West Yorkshire Iron and Coal Company have two blast-furnaces in operation near Ardsley Station; the gas is utilised for heating the stove-pipes and boilers, and the most modern appliances for the manufacture of pig-iron have been adopted at these works. Lincolnshire ore and some ironstone from their own pits are used in the furnaces.

ENGINEER.

#### COAL-CUTTING MACHINERY.

SIR.—Mr. J. Rothery, for the first time, on the 10th inst. set up a claim to be one of the inventors of the Coal-Cutting Machinery which we patented seven years ago. He alleged that the late Mr. Ridley and he were the original inventors, but I was able to produce an affidavit of Mr. Ridley's, which exposed the attempted imposition, and there is an end of that scheme. But in the Journal of last Saturday there is another letter from the same writer, wherein he endeavours to show that we were anticipated in our work by some other parties long ago, and seemingly abandons his own unfounded claim in favour of those parties. Now, if there had been in existence at the date of our patent any machine that could cut coal in successful competition with the old hand-pick of the collier you would, doubtless, have heard of it, and your readers would not have been ignorant of the fact. As to our expenditure upon the abortive machine of Messrs. Ridley and Rothery, I will show how recklessly he deals with every subject. His statement is as follows:—"I say that they never spent 500 pence; the machine was made at Wakefield, and not at their works, nor at their expense." The agreement between us was completed on July 3, 1861, and on the same day I paid them a cheque for 74, 10s. One of the items included in the cheque was for the payment of "the machine made at Wakefield," which Mr. Rothery now says was not made at our expense. The story which he tells about my being willing to spend 40,000*l.* is an absurd fiction. There is no truth whatever in it, and very little, indeed, in any of his other assertions.

As to the legal rights of the several parties in our undertaking, they cannot be discussed in your columns; but I have no doubt but that the parties who paid to Messrs. Ridley and Rothery 250*l.* for their rights and interest therein will be able to maintain their title, in spite of any quibbles which he may devise for the purpose of depriving them of their property.

WILLIAM FIRTH.

Leeds, April 28.

#### COAL-CUTTING MACHINERY.

SIR.—Not having taken any part in the correspondence which has taken place on this subject, I am surprised to see in the Journal of Saturday my name introduced by Mr. J. Rothery in a manner for which there is no justification. But as I was the managing partner at the West Ardsley Colliery, and gave to Mr. Rothery his appointment there, I am cognizant of all that took place in the early history of Coal-Cutting Machinery, and I know from my own personal knowledge that there is no truth whatever in many of the statements made in the letter of Mr. Rothery of the 21st inst.

It is quite useless to follow the allegations made in that letter. But, in justice to Mr. Firth, I beg to say that I was in his company in August or September, 1861, at the Royal Agricultural meeting; that he there explained to me his plan for using compressed air for cutting coal by machinery, and that I had never before heard the same or any similar idea from any other person. Mr. Rothery in his letter says, "Mr. Ridley and myself said to Mr. Bower, even in the pit, that compressed air would be the likeliest power;" this is entirely contrary to the truth. Mr. Rothery did say to me that horse-power was the proper thing to apply, but compressed air was in no way alluded to until Mr. Firth spoke to me some months after the date quoted by Mr. Rothery ("in the pit").

The story about the air being forced into a pipe at Mr. Donisthorpe's mill I never heard of before; I think all who have read Mr. Firth's letter of the 17th inst. comprehend the whole subject. Mr. Firth suggested the air-power for the purpose; a patent was taken out. Mr. Ridley made a solemn declaration on oath that Mr. Donisthorpe, Mr. Firth, and himself were the only true inventors. Now, does Mr. Rothery accuse Mr. Ridley of making a declaration on oath which he knew at the time was a falsehood? I may say shortly that I gave to Mr. Rothery 500*l.* for his 5 per cent. interest in the inventions, as described in Mr. Firth's letter to you. He had the money, but he has since that apparently done his utmost to frustrate the object; and now, when it has succeeded beyond all expectation, he comes forward to claim the credit of that success.

I hope this letter will be accepted as the only communication which will be necessary for me to write. It is not in my way at all, but I could not remain silent and see such audacious statements.

April 26.

WILLIAM BOWER.

#### ROCK-BORING MACHINES.

SIR.—On reading the *Mining Journal* of last Saturday my first impression for the moment was that Mr. Crease was the author of the article signed "Observer" (Gunnislake) on the above subject. This idea, however, left my mind before it hardly had time to be entertained. I then almost made up my mind not to take any notice of it whatever, for the reason that I feared the general public would imagine from its style and contents that it was just such a composition as one in my position would have induced some obliging friend to write, simply for the purpose of giving me the opportunity of directing public attention to my invention. Whether this was "Observer's" intention or not, I am equally indebted to him for the chance afforded me of pointing out some of the capabilities of my machine.

Before doing so, however, I would modestly beg to refer "Observer" for any information he may require about the machines of any other inventors to their respective owners; but, with regard to my own, I would remark that having had several years practical experience in connection with these machines I had full opportunity of ascertaining what would not do (the primary step to knowing what would do), and latterly I devoted my time to designing one entirely dissimilar, so far as my knowledge goes, to any hitherto constructed, which I can recommend as possessing every essential requisite for such a machine. It is perfectly automatic, and, if in boring the borer meets with a hard bar of ground, it could be made to go 100 strokes to every revolution before advancing, and when the impediment was overcome the borer would follow down after the ground at the rate it could be done most effectively. It requires no fancy-made bits on the borer, common made bits, such as miners generally use, are only necessary. This is in consequence of the absolute certainty of regularity attaching to every movement of the machine, which generally is so designed that no working part is exposed to either wet or dirt to cut them; in fact all gear is in the interior of the machine, and designed solely with reference to their effectiveness and durability. "Observer" asks where it can be seen at work. Now, the reason why I have advertised in the Journal is for the purpose of obtaining assistance; and without wishing to take advantage of a letter to insert an advertisement, I would state that, as I do not wish to act the part of the dog in the manger

with respect to this invention, I am ready to dispose of the English patent to any party, providing the estimated costs of proving it in action, and for just about as much as would give me a fair remuneration for the time I have worked on it. The whole cost, I may say, would amount to only a few hundred pounds, and can be done without risk of loss.

H. BRENTON, M.B.

Gunnislake, near Tavistock, Devon, April 28.

#### THE COPPER TRADE, AND ITS PROSPECTS.

SIR.—The falling off in the production of copper, owing to the long depression of the article, will shortly become apparent. The poverty of many of the greatest mines, not only in Cuba, Chili, Australia, Canada, as well as in Great Britain, must ere long have an effect on prices; one extreme invariably produces another. During the last 20 or 30 years very few new copper mines have been opened. The age of enterprise almost died away with the generation previous to the present. Our forefathers went on speculating as a man would cultivate a barren piece of land, or improve a forest, but not so in latter years. Nothing in the present day is thought of but sensation things. No one seems to invest until an article is advancing; for example, were copper to advance 20 or 30 per cent., a rush would be made in trying to discover some fresh or new copper mines. The price of copper has ruled lower the last few years than for a great many years previous. The effect must be at no very distant period to shorten the supply; this is already apparent in the counties of Cornwall and Devonshire, as well as the great producing countries abroad. Copper has in many instances been found in immense quantities, such as in the Island of Anglesey, where one mine yielded 80,000 tons of the yellow sulphuret of copper ore annually during 50 years. Many parishes in Cornwall returned quite as much, or more; but all these once great and celebrated mines are exhausted, like some of the richest mines in Chili, Cuba, and elsewhere. New mines ought now to be sought after, as extreme high prices must be the result of copper in a few years. The great land owners must meet the extraordinary competition now existing, and do a little more to encourage the investing of capital at home. The great success of a few foreign mines has drawn the attention of all enterprise abroad.

A. BENNETT.

April 26.

#### SOUTH POLBERROW MINE.

SIR.—The recent advance in the price of tin has stimulated activity in mining pursuits. Amongst the several mines which have been placed before the public is South Polberrow, in St. Agnes, with which I am well acquainted. From my knowledge of its position and character I can recommend it to capitalists as a fair speculation, and one of great promise. It is situated in the midst of mines which have yielded, and are yielding, considerable profits. At the east lies Wheal Kitty, at the west Great Wheal Charlotte, and at the north Polberrow, and other mines, all celebrated for their yield of mineral, particularly tin. I see from the prospectus that this property has been favourably reported upon by several agents of good repute, amongst the rest by Capt. James Evans, a good tinner, who lives on the spot. The present is a good time for starting tin mines like this, and from the respectability of the directors I augur good results. I anticipate a better time for Cornish mining generally this year than we have had for several years past.—Truro, April 29.

R. SYMONS.

#### HOLMBUSH AND KELLY BRAY UNITED MINES.

SIR.—The present condition of the metal markets is most interesting, and the consequent influence upon mining and mining property is important and extensive. For the last five months tin has been advancing. Although just recently it slightly receded, the rise has been progressive all that time, and especially since the opening of the present year signalized so. Lead is also more valuable, and the demand will largely increase for this metal, from causes which it would not be pertinent to discuss here. Copper, which fluctuated so much, chiefly owing to the irregularity of the quantities sent from South America, assumes a firmer tone. The great increase in the consumption of tin must enlarge the demand for copper, apart from all other causes likely to produce the same effect. Experience has always shown that any large and sudden request for one of these two metals causes an enhancement in the value of the other. The state of trade must shortly revive, as the wants of various nations in particular articles of commerce it is well known must be supplied in the English market.

The chief requirement from abroad which we shall speedily have to meet is railway material in all its varieties—rails, locomotives, vessels for water, oil, grease, and other purposes, tools, and the innumerable detail of minor particulars. The plans of the East Indian Government would alone cause immense purchases in this country of various metals. The Government and people of the United States are bent upon uniting the Pacific and the Atlantic by vast lines, connected in a system. Greater than either of these projects are those of the Czar, whose policy and purpose it is to cover his great empire with a network of railways, which will at once serve military and commercial purposes. Our own colonies, especially in Australia, are preparing by the action of the Colonial Governments to open up the interior by rail, so that it is obvious there must be an increasing demand in this country, indeed such as was never before seen, for iron, copper, tin, and lead.

Under these circumstances every commercial, every scientific man, and, indeed, every political economist and statesman, must take a deep interest in the development of British mines. Every new mine opened or re-opened, and every discovery made in mines that are already at work, must be regarded as a token of national prosperity, the revival of commerce, and the advance of civilization. I am happy to be able to bring under your notice and that of your readers some valuable facts connected with Holmbush and Kelly Bray United Mines, situated in an important mineral district. The site is very extensive, comprising not only Holmbush and Upper Redmoor, both very valuable additions to the original sett.

Holmbush was worked profitably for many years, but was ultimately abandoned, because the shareholders declined making advances for new machinery, which was absolutely necessary to carry on the works. They left behind untouched enormous masses of arsenical mundic, which at that time was unsaleable, but now returns a large profit. From the testimony of those who have inspected the mine for the present company, and of those who actually worked in it, and know it, it may be asserted that there are many thousands of tons already broken on the stalls, which can be raised as soon as the mine is unwatered. The main lode contains great quantities of arsenical mundic. One of the workmen observes, in reference to this, "There are thousands of fathoms of ground standing in the heads of the different levels, besides the chances of getting great quantities of copper ore which is known to be with the mundic."

One of the workmen, who did not expect to see his opinions in print, writing of it as a copper mine, seems to warm with enthusiasm in his theme. He declares that there is an inexhaustible supply of mundic already laid open, that can at once be taken away for market as the different levels are drained. Those courses of arsenical mundic can be seen almost in every level for scores of fathoms in length.

It appears that the grand operation for turning all this wealth to account will be the unwatering of the mine. The erection of a 70-in. engine for this purpose is in progress; it will be started early in the present month. At Kelly Bray one of the finest discoveries which have for many years rewarded the miner's enterprise has been made. The old miners appear to have confined their operations to a caunter lode, entirely overlooking the main lode of the mine. This fact has been discovered by the present proprietors. It will be seen from the detailed reports that so far as the main lode is worked upon it has proved very valuable. Within a short time after the engine at Holmbush has begun working operations can be commenced on another level, and as the sump within 3 fathoms of the next level carries its value all the way through, there can be no doubt that it will be found equally productive. The ore, as will be seen from the sales, averages a high price, and the mine is making regular monthly profits, even before the machinery is set to work. The old miners sunk the shaft and drove levels on the caunter lode for 135 fathoms deep. As, therefore, the mine is drained, the present company can clear up the levels, and at once strike out to the new or main lode, which there can be no doubt, from what has already been seen, will prove highly productive. It is obvious that the result must be that an exceedingly extensive mass of ore ground will be laid open.

This very valuable property has just been registered under the Limited Liability Act, with a capital of 12,000*l.*, in as many shares of 1*l.* each, paid-up. No capital whatever has been laid out by the present proprietors on the property, as the whole of the expenditure, including the erection of the 70-inch engine already referred to, and an extensive plant, have been met by the returns from the mine. It would be very difficult, taking all the circumstances into review, to name a better investment, or to feel more confident and secure in recommending it.

EPSILON.

#### COPPER MINING ON LAKE SUPERIOR.

SIR.—In my last communication I intimated my intention to furnish you with some information regarding the mines of this region.

Commencing with this county, the Cliff Mine claims the first attention, it being not only one of the best but the deepest in the county. This mine is now down to the 17th level under adit, the levels being 75 ft. apart. The copper-bearing ground is about 1000 ft. in length, the strata being a series of amygdaloidal traps; these underlie what is known here as the Greenstone Range, and dip north with it at an angle of 30° from the horizontal. I might mention here that these amygdaloids, with the intervening traps, and a parallel series north of the greenstone, as well as some two or three belts of conglomerate, which take the same strike and dip form the mineral range of Lake Superior region. In this county, for 30 miles in length the strike of the strata is nearly east and west: going west, it gradually bends round, and in the Portage district, some 30 miles from the Cliff Mine, runs north and south; beyond that, and in Ontonagon county, a bend again takes place, and in the county named the direction is similar to what it is here. Although the belts of amygdaloid in this county carry more or less copper, as well as the conglomerates, yet it is questionable if any of them can be made commercially valuable at the present cost of production. Transverse veins running through these belts are those on which the mines of Keweenaw county are worked. At the Calumet, midway between the Cliff Mine and Portage Lake, the conglomerates are found rich, the amygdaloids not having as yet received very much attention. Portage Lake lodes are the Keweenaw county amygdaloids; they produce in that district largely of stamp copper, and small masses, or barrel work. On these lodes some of the best mines on the Lake are worked.

I must apologise for such a lengthy digression, and would now return to the Cliff Mine. The Cliff Mine for 1868 shipped 885 tons of mineral, worth, probably, about 65 per cent. for ingot copper. They claim to have made a profit of \$60,000 on the year's operations, but have not declared a dividend. The mine is said to be looking as good as for some time past. Very large masses have not been found during the year, 50 tons being about the heaviest. This mine is well equipped, there being two principal working shafts. Pumping and hoisting gear are effectual and complete. There is also a man-engine. The stamping-mill contains 40 heads of Cornish stamps, termed here "old style." Central is another of the Keweenaw county mines, which shipped last year over 1100 tons of mineral, worth 80 per cent. for fine copper. This mine is now sunk to the 10th level, the vein continuing rich as depth is attained. Although both the Cliff and Minnesota Mines—the latter in Ontonagon county—have yielded larger masses of copper than the Central, yet 100 tons in a piece have been several times net with, last season they shipped some of the finest looking masses I ever saw, cut square as a brick, pure as a cent, and weighing from 8 to 10 tons. The mine is fully equipped, and is regarded by Lake Superior people as the safest in the country for investment. They made a profit for 1868 of about \$90,000, and dividends \$70,000, or \$3*l.* per share. The stamping-mill contains 48 heads of improved Cornish stamps, head and lifter weighing 1100 lbs., with a lift of 14 in. The rock in this mine, as well as in all but one in this county, is broken by manual labour, the occurrence of large pieces of copper requiring that it should be carefully picked.

The Phoenix Mine is an old standing concern, and has been working for 20 years with varying success, but never until lately able to meet expenses. The company own lands both sides of the mineral range, and operations are being carried on in three several places—two mines south of the greenstone and one north. To that on the north side very much importance cannot be attached, although the explorations that are being carried on are interesting. One vein, south of the range, is worked to the sixth level; when first opened mass copper was found on this vein, cropping out on the very surface; the indications were favourable indeed, but after sinking below the first level there was a great falling off. The second and third levels were poor. The fourth was not much better, but still the company stuck to it. The fifth level showed a great improvement, and the sixth is rich; for the length opened I have scarcely seen a better "show" of mass copper; there was a mass then ready to be cut up, just thrown out by a sand-blast, which would probably weigh 30 tons. Phoenix shipped last season 240 tons of 70 per cent. mineral; this would not meet expenses, but they are doing much better now. The stamping mill at the Phoenix is provided with two batteries of Wise's stamps, and one battery of Hotchkiss's atmospheric stamps. Of these I will write in my next.—Michigan, March 25.

MINER.

#### THE MINING INTERESTS OF COLORADO AND NEVADA.

SIR.—The announcement in the Times of this day that the Pacific Railroad will, probably, be completed this week is of momentous importance to the mining interests of Colorado and Nevada, and deserves a passing notice in the *Mining Journal*, as if only a tithe of what we anticipate with respect to the mineral riches of these territories is realized, the world will now soon be astounded at the vast wealth which they will be enabled to pour forth in the shape of gold, silver, copper, and lead, that must even put to shame the wonderful discoveries of California and Australia. These territories, situated 800 miles west of the Mississippi and Missouri rivers, in the heart of the American continent, could only be reached until the completion of the railroad by a perilous journey of about 50 days across the prairies in wagons, with the chance of being starved to death or scalped by the Indians on the way. This journey, and the long civil war which raged between the North and South, have prevented the discoveries which have been made during the last few years from being known or utilised; now, however, the iron road being completed, enabling the mines to be reached in four days from New York, or in fourteen days from London, as well as the instant communication by means of the Atlantic Cable to all parts of Europe, will cause, I am certain, an influx of European capital, which is all that is wanted to develop the vast riches that abound.

Our agent in Colorado will shortly commence to ship to us periodically, per railway, via New York, ores for treatment at Swansea, and we doubt not with great profit to all parties concerned, the results of which I shall have much pleasure in communicating to the Journal for the information of your readers, as also such other facts or information concerning Colorado that may be in our possession.

WILLIAM COPE.

British and Colorado Mining Bureau, Bartholomew House, April 28.

#### FRONTINO AND BOLIVIA (SOUTH AMERICAN) GOLD MINING COMPANY.

SIR.—I was an

# Holmbush and Kelly Bray United Mining Company, Limited.

REGISTERED OFFICES,  
No. 12, OLD JEWRY CHAMBERS, LONDON, E.C.

REPORTS.

FROM CAPTAIN HENRY JAMES, OF REDRUTH.

According to your request, I inspected the above mine on the 22d Inst., and now beg to hand you a few remarks on the prospects and position of the late discovery in the Kelly Bray Mines. I have also made a rough sketch of the workings and the new discovery, which, no doubt, will assist you in understanding its proper position. You will see by the sketch that the whin-shaft was sunk to the 40 or 50 fms. (should be to the 125 fm. level) below the present working (by the former workers), and the footway-shaft is sunk to the 25 fm. level below surface. At the 25 the former workers have driven from the whin-shaft westward to within a few fathoms of the great cross-course, on what they called the Kelly Bray lode. About 20 fms. west of the shaft a branch apparently went off to the south, carrying its head pretty much south of west. With all due deference to the late manager, unless he were seeing the operations in this end every day, they might have gone by this branch without the agent's notice; and, in fact, no notice was taken of it at the time. But it now turns out, "and I think beyond a doubt," that the present workers have discovered what they are now working on to be a distinct lode from the Old Kelly Bray lode. The operations west of the whin-shaft, on the new lode, have been as follows:—They first began by stripping down the south side on the supposed branch, and in every fathom they opened on it it increased in size, so that in 2 or 3 fms. driving from the point of horse they had a good ore lode of from 20 in. to 2 ft. wide. In driving west at about the western winze the lode was 5 feet wide, but as it got towards the cross-course it again became smaller, and about 8 or 9 ft. before it came in contact with the cross-course. It got disordered and broken up, and shifted a little to the north, by the influence of the cross-course. They appear to have driven through about 25 fms. of good ore ground between the point of horse and the cross-course, the lode varying in size from 18 in. to 2 ft. wide, and will produce from 2 tons up to 15 tons per fathom, worth about £2 per ton. The richest point now in operation is a stop working. In the east end of the western winze (see plan), and about 12 feet below the 25, where the lode is worth from £70 to £75 per fathom. I should here remark that No. 2, or western, winze has been sunk 6 fms. below the 25, where they came down to water, and could sink no further. Within a few feet of the bottom of this winze met with a poor floor of hard capel, which impoverished the lode for 2 or 3 ft. only; but as soon as they got through the capel they came down to a large hollow lode, producing very rich ore, and also flowing with water, and, of course, were obliged to suspend operations. No. 1, or eastern, winze is sunk 5 fms. below the 25, and also down to water. They are putting up a rise in the back of the level, now up 6 fms.; the lode, with the exception of the last 6 ft., has produced 4 or 5 tons of ore per fathom; in the other 6 ft. the lode has been a little disordered. There is one stop working at present in the back, the lode producing 4 or 5 tons of ore per fathom—stope 3 fms. long and about 6 fathoms above the back of the level. They have driven the 25 fm. level through the cross-course west, and are now driving north to intersect the lode to the west of the cross-course. The cutting the lode to the west of the cross-course is a very important feature in this property, and how far the lode is heaved is, of course, uncertain. You will see by the plan that in driving east from the point of horse, now driven about 11 fms., the new part now driving on is diverging fast from the old workings, which to me is a strong evidence of its being a separate lode from the Old Kelly Bray lode. I consider it a good discovery, and have every reason to believe it will continue in depth, at any rate, for a great many fathoms below the present deepest point.

FROM CAPTAIN RICHARD RICH, OF BODMIN.

Kelly Bray Mine is drained 30 fathoms below the surface by the outflow of the water through the adit level of an adjoining mine. At the 25 fathom level, about 30 fathoms west of the Footway shaft, the present proprietors resumed the driving of this level west on a part of the lode which seems to have escaped the notice of the former parties, and which has proved to be highly productive for copper for about 30 fathoms up to the great cross-course, near which the great deposits of copper ore have been found in this district. This cross-course, which is 7 fathoms wide, has been cut through, and a cross-cut is now being driven north in search of the lode, which, when met with, will probably be found as productive as on the eastern side. A winze has been sunk below the 25 fathom level, on the course of the lode, which produced 8 to 9 tons of copper ore per fathom. A rise has been put up in the back of this level 7 fms., which produces 3 to 5 tons per fathom; in the present back the lode will produce 3 tons of ore per fathom. The stope in the back of this level—6 fathoms long, 1 fm. high—will yield about 3 tons per fathom. This stope is within 5 fathoms of the cross-course. I find that the whole of the lode taken away in driving the level, sinking, rising, and stopping, is 90 fathoms, and that the produce has been 450 tons—averaging full 5 tons of copper ore per fathom. In addition to this there has been 200 tons of mudi raised, realising 20s. per ton on the mine. About 30 fms. east of the Footway shaft, the level has been driven 20 fathoms on a part of the lode called the New North Lode, which appears to diverge from the old workings. This lode has produced 1/2 to 2 tons per fathom; this I also consider to be a very promising feature. On Monday last there were sampled 110 tons of copper from this mine (computed 100 tons), which, with 50 tons of mudi, valued together at £300, is the produce of February month, at a cost of £300; and there to now about 39 tons of copper ore on the dressing floors in the course of dressing for the next sampling. I estimate the value of the reserves, now available above and below the 25 fathom level, at £10,000. Judging from the plans of the new part now driving on, it appears evident this deposit of ore is standing intact to the 95 fathom level; and as there is no doubt this mine will be drained to this level by the setting to work of the 70-in. engine at Holmbush. I consider there are enormous chances of success. In respect of this deposit discovered at the 25 fathom level, and that the chances are also very great in respect of other points of great importance which came under my notice, which I had not time to fully investigate.—Holmbush Mine: Active operations are in progress here. A 70-in. cylinder pumping-engine is in course of erection, which will probably be set to work in about two months, with other suitable appliances. The main object here is to drain the comparatively shallow levels, to lay open the numerous deposits of arsenical mudi said to be standing there, which has been strongly evidenced by the large quantities of mudi (upwards of 4000 tons) gotten out of the debris of the old workings. Suitable erections are in progress for extracting the arsenic, and to make it mercantile on the mine, and which will probably be attended with profitable results. Judging from my own observations and from the information I obtained, there can be no doubt in my mind that in the Kelly Bray and Holmbush Mines you have a property rarely to be met with. The available work done, as regards both mines, will effect an immense saving in both time and capital.

FROM CAPTAIN T. RICHARDS, OF HINGSTON DOWN.

At your request, I have carefully examined the Holmbush and Kelly Bray United Mines as deep as the water would admit of. The Kelly Bray portion of the mines I would at present more particularly refer to. I descended by the Footway shaft to the 25 fm. level, which is extended westward altogether upwards of 60 fms., the first 30 fms. being driven by the former adventurers, in which some bunches of ore were discovered and taken away by them on the north part of the lode. The present company have extended from this point on the south part of the lode, and it has proved to be a good course of ore nearly throughout, to within a short distance of the great cross-course, and has yielded 5 tons of ore, worth about £25 per fm. A portion of the back has been stope, and the ground proved by a rise being put up 8 fms. high, and good returns will be continued for some considerable time from this productive ground. In the bottom of this level, about 5 fms. to the east of the great cross-course above alluded to, there is a winze sunk down to about 6 fms. deep to water, in which there is a magnificent course of ore, and the stope now being worked east and west therefrom are equally good, and will yield for the whole length, 6 fms., 8 to 10 tons of ore, that may be valued at £50 per fm., and to all appearance it will continue down to some considerable depth, dipping to the westward with the cross-course. The cross-course has been opened through, and a drive continued northward in search of the lode on the western side of it, and I have no doubt when the lode is discovered, whether to the north or south, as may be the case, if not productive at the present level, that it will be so at a deeper point, as the course of ore on the east side is dipping fast in that direction. This level is driven east on the new north lode about 20 fms., and will in places produce from 2 to 3 tons of ore per fm., and the present end is exceedingly promising. This level is also being driven eastward on the Old Kelly Bray Lode. The ground here for the last few fathoms has been disordered, but the present end is showing signs of improvement. The value of the ore now standing in the back of the 25 fm. level, and down 6 fms. below the bottom of the level, to the depth of the water only, I estimate as being worth £6000. A large engine, of 70-in. cylinder, is being erected on the Holmbush engine-shaft, in which large pitwork will be placed, and in about a month will be pumping and draining the water to a considerable depth throughout the whole run of mines, immediately after which you will be in a position to go down and follow the ore discovered in the Kelly Bray district, and carry out any desirable explorations in the other various parts of the mines, which together, in my opinion, can be worked to great profit.

FROM CAPTAIN WILLIAM HANCOCK, OF NORTH WHEAL CHIVERTON.

At your request, on Saturday last I inspected these mines, and have great pleasure in submitting to you the following as my report thereon:—Kelly Bray: Footway Shaft: The 25 fathom level is extended west of this shaft from 60 to 70 fathoms, about 25 fathoms from the shaft. The present company commenced to strip down the south part of the lode; and in a short distance a good deposit of copper ore was met with, which continued on for about 40 fathoms in length. The last 30 fathoms in a lode world from £20 to £30 per fathom. The cross-course was then met with, inclining west about 6 feet in 6 feet, which dislocated the lode; they are now driving north in search of it. From the character of the ground no doubt when intersected it will be found productive. The stope in the back of this level are looking well, worth in places £25 per fathom. A winze has been sunk in the bottom of this level and 5 fathoms east of the cross-course, down 6 fathoms in a splendid course of ore, worth from £40 to £50 per fathom. I could not examine the extreme bottom, it being down to water, and suspended; there is not the least doubt but what it is equally productive. The 25 fathom level, east of Footway shaft, on new north lode, is driven some 15 to 20 fathoms—orey for all this distance; some places worth 2 tons of good ore per

fathom; lode in the end producing about 2 tons of coppery mudi—ore, say, worth £3 per fathom.—Holmbush Part: They are erecting a 70-in. pumping-engine on the old shaft, which will be in order to work some time next month; this will not only drain this part of the mine, where it is said large quantities of coppery mudi can be returned at a profit, but will also drain the Kelly Bray part to the 70 or 80 fathom level, which will enable them to extend the levels below to meet the rich course of ores gone down below the 25. The ores discovered in the back of the 25 fathom level and 6 fathoms below the 25, I estimate to be about £7000. Taking into consideration the depth from the surface and the length of the ground laid open, this is one of the best discoveries I have seen for a considerable time.

FROM CAPTAIN W. B. COLLOM, OF OKEL TOR.

Kelly Bray: Having inspected this mine, I beg to send you my report thereon. The adit, or 25 fm. level, has been driven west of the shaft as far as the great cross-course. This drive has been on the main lode, which the former party had left standing, and in driving on it the present adventurers have discovered a course of ore 25 fms. long, when it is cut off west by the great cross-course. Taking the drivage on it 25 fms. long, with the rise 8 fms. high, and winze sunk down to 6 fms. below the adit, so far as the water will allow, and the stope, this course of ore has yielded copper ore which has averaged £25 per fathom, and looking at the ore ground now standing, it is my opinion it will be found equally valuable. In the bottom of the adit level, to the east of the winze, I saw a lode standing nearly solid for about 4 ft. wide, of rich coated yellow ore. I valued the lode in this particular place at £70 per fathom. The drivage east in the adit level is on a lode north of the lode which the former party worked on, and from the difference in the bearings of these two lodes in this level, it appears the old lode worked on is a caunter, which I find is running 45° to the south of east, and that the north lode now working on will prove to be the main lode. Finding the ore making close up to the cross-course on the eastern side, so soon as the lode is intersected on the western side of the cross-course the chances are certainly in favour of meeting with an equally productive lode. I may state this course of ore is backed by a very fine gossan. I have examined the section of the former workings, and find there is a large piece of ground below the adit level to the east of the cross-course, which is standing untouched. In confirmation of the value of the lode in the new discovery, the sales of copper ore at the Ticketings speak for themselves.

FROM CAPTAIN JOHN SIMMONS, OF THE DUCHY OFFICE, LOSTWITHIEL.

In reply to your letter of the 19th Inst., I am glad to inform you that the lode driven through at the 25, in this mine, has a most promising appearance. The extent of ore ground laid open is upwards of 30 fms. in length, and in the deepest point seen in the bottom of the winze, sinking below the said level, the lode is producing 7 tons of good copper ore per fathom (worth £5 per ton); having a most eminent appearance if this continues, and by following it with the aid of the new engine erecting on Holmbush shaft (which is calculated to drain this ground), an increased quantity of ore must be raised. The new lode discovered on the top of the hill in the eastern part of the sett is large and well defined, and presents very good indications for the production of mineral in depth. If properly developed, and which I shall be most anxious to see at a deeper point; this, together with the ore ground laid open—as referred to in my letter, and from which good profits are now being made—render the property "generally" a good investment for capital.

FROM CAPTAIN WILLIAM VERRAN, OF WHEAL MARY FLORENCE.

(FIFTEEN YEARS AGENT IN HOLMBUSH MINE.)

I need not say that the sett of Holmbush is very extensive, embracing several lodes, two of which have been wrought on to a great length and depth, especially the one known as "Holmbush Lode," which has produced very large quantities of copper ore of superior quality, reaching from within 20 fathoms of the surface to the bottom of the mine, which is about 200 fathoms, or 175 below adit. In the previous working of the mine the object was to follow this very productive shoot of ore (which has a westerly dip), to the neglect of other shoots which probably exist, and which might be proved either by sinking a new shaft at some considerable distance west of Hitchins's shaft, so as to intersect the lode in settled ground—say, 4 fms. from surface—and from that point sink on its course, having the probability of discovering new shoots of ore while sinking, with the absolute certainty of a course of ore at the bottom of the old workings, which on the very last day of working was worth over £40 per fathom, and this being more than 60 fms. west of the lead lode, proves it to be a continuous course of great length. The 160 fm. level produced over £10,000 worth of mineral west of the lead lode, to say nothing of its richness east of that point, where it was very productive. Or another course might be adopted—that is, to erect an engine of sufficient power (say, 60-inch cylinder) on Wall's shaft, and drain the water to the 60, which has been extended west through the great cross-course, and even beyond the lead lode, and was a very productive level. There is also a 50 and a 40 fm. level on this lode, but not driven far enough west to intersect the cross-course, so that west of the cross-course the 60 is the shallowest level; and, judging from the great productiveness of that level, there is every reason to expect great results at even shallower points, and by extending operations in that direction you will also prove the value of the lead lode, which at deeper points has produced hundreds of tons of lead of good quality. If there were only the above-named object to be gained it would be a fair speculation, but, in addition, there is the certainty of finding at the 60, as well as at the 50 and the 40, vast quantities of arsenical mudi already discovered, and hundreds of tons already broken and left underground; and should the mine be drained to deeper levels you will there find an abundance of ore, both in Holmbush and Flapjack lodes. The latter has not been wrought on so extensively as the Holmbush lode, but it has, nevertheless, been very productive at different levels, especially at the 110, where many good parcels of ore have been raised, and which, in many places, produced 8 or 10 tons to the fathom. This lode was also found good in the 120; but below that point scarcely anything has been done, more than intersecting it in the 145, where the ore broken from it produced, by assay, over 14 per cent. of fine copper. The same lode has been operated on to a limited extent east of the great cross-course, and parallel with Wall's shaft, both at the 20 and 40 fm. levels, where it was also found to be large and productive, and from which several parcels of copper ore have been raised and returned. On the whole, I consider there is every prospect of a paying mine, even at and above the 60 fm. level; for besides the great abundance of mudi which can be made available, there is a good sprinkling of copper ore, which can be separated in dressing. And I confidently believe, with a vigorous prosecution of the 60, 50, and 40 west, you will open some very valuable ground.

The following remarks are from the miners and others who formerly worked in the Holmbush Mines:—

JOHN BUCKINGHAM writes:—

The northern boundary of Holmbush Mine adjoins the granite range of Kilk Hill, in a beautiful stratum of blue clay-slate, extending 3/4 of a mile from north to south, and 1/4 from east to west. There are two engine-shafts sunk in this sett. The eastern, or Wall's shaft, is sunk 124 fathoms. Levels have been driven east and west at various depths, on two lodes, known as the Flapjack and the main lode. The Flapjack, on south lode, varies in size from 3 to 10 feet—all ore and arsenical mudi. Almost any quantity of the latter may be raised at a very trifling cost; in fact, there are hundreds of tons in large piles underground already broken, there being no sale for it at that time. The main lode has been driven on at every level; this lode contains a great quantity of sulphuric mudi, particularly in the shallow levels. There are thousands of fathoms of ground standing in the backs of the different levels, besides the chances of getting great quantities of copper ore, which is known to be with the mudi. There is a very large cross-course running north and south through the centre of the sett, called the "great cross-course." The Flapjack lode has not been seen west of this. There is a lead lode west of the cross-course that has produced large quantities of rich silver-lead ore at several levels, but there has been nothing done on this lode above the 90 or under the 132. The western, or Hitchins's shaft, is sunk to the 165, and there is a winze sunk 10 fms. deeper, and a level driven about 40 fms. west, in a branch of ore 15 inches wide, worth £15 to £20 per ton; this is where they got the greatest part of their ore the last two years' working. If the lode had produced twice the quantity of ore it could not pay, as they had to draw the water to the engine and the stuff from the bottom of the mine to the fire-whim. This shaft went through the lead lode at the 50 fm. level. At the 70 there was a lode north, but they never drove on it—nor do I ever recollect its being done on anything on, but at the 120 fathom level, where it was cut on driving north on the lead lode. Without working the old mine at all, you have here a good property in whole ground from surface, even without touching the old workings. Then you have got the north part of Redmoor Mine, with the engine-shaft sunk perpendicular in firm kilas ground to the 125 fathom level. Wall's shaft is also perpendicular, and if you intend pumping out the water to the bottom, I would advise you to put an engine on each of these shafts.

HENRY KNEEBONE, formerly timberman at Holmbush, writes:—

In the 60 fathom level the lode is 2 ft. wide, worth 9 tons of mudi per fathom; the length of this course of mudi is from 60 to 70 fathoms. From the 40 to the 20, east of Wall's shaft, there are backs not taken away for upwards of 50 fathoms, and from what I saw the lode will turn out 12 tons of mudi to the fathom, and west of Wall's shaft above the 40 there is but little done; the lode is a good one for mudi, varying in size from 2 to 4 ft., and I should think that 40 men can raise 500 tons a month, and in raising this they would raise from 50 to 70 tons of copper ore. On Flapjack lode there can also be a large quantity raised.

JOHN AND WILLIAM PARSONS (a tributary and a pitman) write:—

We think, when it is in fork to the 40, there can be from 250 to 300 tons of mudi and 25 tons of ore a month raised with about 30 men; and, when you get to the 60, you can increase to 500 tons of mudi, and 40 to 50 tons of ore. There is communication to Hitchins's shaft, where there is a very kindly lode for ore and mudi, standing in whole ground to the surface. We think the

40 end west will prove very productive for ore and mudi, and to the 70 fathom level. The Flapjack lode is also inter-ceted here, so you can make another large increase of yield by this. Then to the 80, on to the old lode, where you will be able to increase your supply of mudi to 700 tons, and from 50 to 60 tons of ore, worth £1 a ton; and still there is a very large deposit of mudi from the bottom of the 80 to the 100, with ore which will pay good profits for forking down the water.

RICHARD PEARCE, a miner, writes:—

You ask me for a report on Holmbush Mine. I will tell you to the best of my knowledge. In the 60 fm. level there is a lode 3 feet wide for a great number of fathoms, worth 9 tons of mudi to the fathom. From the 20 to the 40 fm. level I was one of the men that worked a winze through a solid course of mudi from 3 to 4 feet wide, and will turn out 12 tons of mudi to the fathom, and a good chance of copper ore. The length of this course of mudi, I should think, was not less than 50 fathoms east of Wall's shaft, and a greater length west. I have no doubt but that 40 men will raise 500 tons of mudi per month, and 50 tons of copper ore. I know but little about the Flapjack lode, but this I know—it was always understood that this was the best lode for mudi.

JOHN SPARGO writes:—

In reporting on this mine, I shall confine myself chiefly to the stops in the different levels above the 80, and you will be doing of this work be placed in a very important position, for it is a well-known fact, not only to myself but to many of the miners and mine agents in the neighbourhood, that there is almost an inexhaustible supply of mudi already laid open that could at once be taken away for market as the different levels above the 80 are drained, and that both east and west of Wall's shaft. Those large courses of arsenical mudi can be seen almost in every level for scores of fathoms in length, varying in size from 1 to 6 ft. wide; there is, of course, space enough to employ a great number of hands, so as to enable you to go to market with large quantities of mudi monthly for many years to come. Should you require 1000 tons per month, about 60 able miners can send that quantity to surface. Having said so much of the yield of mudi, I now give you my views. As to the copper, you will be sure to raise while exploring the mudi in the different stops. You may rest assured as soon as the water is in fork, even as deep as the 20, many of the neighbouring miners will be anxious to take tribute pitches, and this will increase as you go on towards the 80, thus many tons of copper per month will be raised independent of the mudi; indeed, on exploring the latter, you may expect to discover some rich bunches of copper

entire quantity of gold present passed through a sieve having 3600 holes to the square inch, and it is so fine (thin) that it floats on the surface of the water, and can only be distinguished by the aid of a strong lens. Having all these circumstances in view, I would recommend a quick system of amalgamation, and an experiment might be tried on (say) 20 tons of the ore, sending it to Hillario, where the amalgamation machinery exists intact and ready to operate. Other 20 tons might be tried in skins, as they are very cheap here, and thus compare the results. The mass of the hills is carboniferous or mountain limestone, with elvan courses cropping out at many points. The limestone is not, in my opinion, very thick or deep, and forms a superficial shell, having for its immediate base the usual clay-slate formation of the Tontal range, of which the Guatimal hills are small spurs. I look upon this as more favourable than otherwise, and believe that in getting into the clay-slate in depth, we shall find the mass of the lodes in iron, rich auriferous iron pyrites. Looking at the quantities in sight, and what may be extracted from old closed up mines, we have ore stuff sufficient to keep 100 heads of stamps in constant operation for many years. I have little fear of Captain Vivian being able to produce 100 ozs. of gold daily when the full power of machinery and hands shall have been turned on. The old workers threw away all the iron pyrites ore, as they were unable to extract its gold, and wherever they cut this class of ore they left the pillars standing intact, which remain there for the company's benefit.

Mr. A. POTLOCK mentioned that by means of a small microscope he had traced several particles of visible gold in the ore promiscuously taken from the samples upon the table.—The CHAIRMAN added that assays of the ore would be made, and the result communicated to the shareholders.

The motion was then put and carried unanimously.

Messrs. Waddell and Co. were re-appointed auditors.

A vote of thanks to the Chairman concluded the proceedings.

#### LUCY PHILLIPS GOLD AND SILVER MINING COMPANY.

A special meeting of shareholders was held at the Guildhall Tavern, on Wednesday.—Mr. J. H. ORMEROD in the chair.

Mr. C. CLARKE (secretary) read the notice convening the meeting. The report of the directors stated that they cannot but regard the result of the committee of consultation with satisfaction, as it exonerates them from any charge of mismanagement. It appears, however, to the directors that the committee have scarcely directed sufficient attention to the legal difficulties by which the company is now surrounded.

The following communication had been addressed by the Chairman to the shareholders—“Your company requires now much more of my time and attention than I can afford to give it. I have, therefore, decided to resign my seat at the board, and, in doing so, wish to say that I still have strong confidence in your ultimate success when the capital required is raised, but I am fully persuaded that your best and safest course is to give your support to, and to be guided by, your present directors in adopting a strictly legal course. The board are largely interested as shareholders, and have had no other aim from first to last than to conduct your affairs in the best possible manner; but they have had difficulties thrown in their way by parties who ought to have known better, and to have acted differently if they really had wished the success of the company.” W. L. WEBB.

The report of the directors concluded by stating that, in accepting the resignation of the Chairman, they expressed their great regret at his decision, and begged to tender him individually and collectively their sincere thanks for the zeal and ability which he has at all times manifested in conducting the affairs of the company, which they are well aware has been at great sacrifice of his time and money.

The last letter received from Dr. Bishop stated that the weekly accounts from Yuba are most encouraging—the Atlanta, the Minerva, the Varietie, the Leonora, and the Empire State are all turning out rich ore. A parcel of ruby silver was sent to him a week ago, containing 85 per cent. mullion in the quartz—in fact, so rich that he could not pound it in a mortar. There are two reasons why the Middle Boise district (as Yuba and Atlanta are called) is so tardy in absorbing the capital of San Francisco, as well as the Eastern States:—1. The difficulty of approach and distance hitherto from railroads.—2. Two or three years ago a few ledges were sold out east for large sums of money, not having been developed, and when the purchasers came to see what they had bought they retired in disgust, and would not try to develop them, and since some have turned out rich. A great deal of work has been done the last autumn and winter, and now nothing can prevent the rapid development of the entire district.

The CHAIRMAN reviewed the different points adverted to in the report, and, after a lengthened discussion, an adjournment was agreed upon.

#### EAST WHEAL RUSSELL MINING COMPANY.

A general meeting of shareholders was held at the offices, Austin-frain, on Thursday.—Mr. BRADLEY in the chair.

Mr. J. H. MURCHISON (the secretary) read the notice convening the meeting, and the minutes of the last were confirmed.

A statement of accounts was submitted, which showed a balance of liabilities over assets of \$6077, 18s. 2d. up to the end of February, in addition to which £100 has been claimed by the lord for land drainage, &c. The report of the account was read.

The CHAIRMAN moved that the accounts be passed and allowed, which was put and carried unanimously.—After some discussion it was unanimously resolved to accept certain relinquishments, and a special general meeting was convened for May 13, for the purpose of considering the property of abandoning the mine, and winding-up the company.

A vote of thanks to the Chairman terminated the proceedings.

#### PICKARDS DOWN SILVER-LEAD MINING COMPANY.

A general meeting of adventurers was held at Barnstaple, on April 21, when the accounts for four months, to end of March, were passed, and a call of 1s. per share was made. The following report was read, and the operations were ordered to be carried out with all dispatch. The mine is thought very highly of in the locality, many gentlemen of the neighbourhood holding a large interest:—

April 21.—Operations were commenced in December last by costeining. Several pits were opened on the course of the lode, and the lode sunk on so far as water would admit. Sufficient was seen of its general character to warrant more extended trials, and for this purpose an engine-shaft has been commenced, which will in all probability intersect the lode in its downward course at 20 to 25 fathoms. The lode, however, can at any time be seen by driving a cross-cut to it, and which I should recommend when the shaft reaches the 10 fm. level. The lode as seen in shodding was 2 to 3 ft. wide, and producing fine spots and good solid lumps of silver-lead ore, leading to the belief that a comparatively small outlay and shallow depth will give the property a trial, which it is hoped will lead to very productive and profitable results to the proprietor. The engine-shaft is now down about 2½ fms. from surface; the strata thereto are highly mineralised, containing spots of lead and copper ore occasionally.

#### FOREIGN MINES.

DON PEDRO NORTH DEL REY GOLD.—*Telegram from Lisbon:*—Produced weighed to April 2, 25,792 ols.; estimate for March, 26,792 ols. In the previous month the total cleaned was up 15,819 ols.

UNITED MEXICAN.—Guanajuato, March 22: Jesus Maria y Jose: Part of the ore sent to our haciendas comes from the deepest workings, but the greater and better half is from our reserves. These latter can only be worked upon occasionally, and with due precaution, because the lives of our workmen are at stake, and it is requisite with one to remove to the top with all timber (rubish), and to secure the ground with stones and dry walls. In this month for example we have reduced our hacienda workmen and are only at work in the lower section of the mine, and have sent much less ore to the haciendas than is our custom. The accounts for February show an excess of outlay of \$865, but in March we shall have more silver from Duran, and a six months' paypa, with the assistance of which I hope to come out better on the quarter than could have been expected from the January and February statements. The buscon sales keep up, and for the four weeks ending March 18 they amounted to \$6000. In the Mine of Remedios (adjoining the Mine of Jesus Maria y Jose) the haciendas y men removed from Jesus Maria have been put to work on this ground, selling all the better classes of ore, and only sending that of inferior quality to the haciendas. The sales have been all of hacienda ore; on March 11, \$116, and on the 18th, \$899. In the former week we sent to the haciendas 93 cargs of ore, and in the latter 219 cargs, of an average ley of about 5 marcs per ton, or 27½ ozs. per ton, with a good ley of gold. The outlay thus far has been covered by the sales, and ore remitted to the haciendas. We are opening three levels in this ground, all in fair ore ground, against the upper and lower wall of the lode, which is upwards of 6 vars broad, and we have a contracelo (a working upwards), called San Eligio, in very good though narrow ore.—March 24: P. S.—We have cut some very good ore in the contracelo.—Mines in the Guadalupe de la Oseca District: The ore in Encinalas continues in the southward front and downwards, but is not so good in quality as at first. The ore extracted in February was sufficient to pay the expenses, which amounted to \$1225.—New Concessions: In the adit of San Cayetano the rock is about the hardness I have ever seen in this district, so that in last month we only advanced 4 vars. A narrow strip of quartz was cut in the first week of March.—Mine of Bueno Ayres: The shaft advanced well; on March 20 it was 50 vars. The mulete (horse whin) forge, and stables, are being roofed to prepare against the rains.—Mine of San Antonio de la Ovejera: Workmen getting on well, though the last week the rock got harder; the shaft on March 20 was 93 vars deep.

MARIQUITA.—Santa Ana Mines for the month of February: Cost, \$8057; returns, \$5780. The superintendent writes, under date March 20:—“We have got the 8-head wet stamp well to work, with heads of 2 osts. each, and have got 7 tons of dressed ore up to the 18th, but expect more henceforward, as we were obliged to stamp and get rid of a lot of poor stuff already in the adit, passes.”—Marmato Mines for the month of February: Cost, \$10,309; returns, \$10,443. It is with some disappointment I have to announce to the board the unsatisfactory results of the past month, having expected at least a temporary change in the weather, but I respectfully solicit the board to feel no uneasiness on the subject, for the ore is accumulating, and the new station now opened on the Aquacatala lode offers a yield of ore of a quality we have not seen here for a long time. There are several other stations also which present a most favourable appearance. Thus on the cessation of the present drought I look to good returns as a sure result.—Aguas Claras Mines for the month of February: Cost, \$2802; returns, \$2657.

CAPULIA.—Capt. Pauli, March 26: We have sent to the haciendas of San Cayetano, up the 21st inst., 297 cargas of metal, of which 150 cargas are in beneficio; assay, 24½ marcs per monton. I purchased and sent to the hacienda 1050 lbs. of quicksilver, at \$66 per quintal, and 3 quintals of sulphate of copper, at \$50.—Hacienda San Juan: They have promised the castings from Apulco next week. The gudecons for the water-wheel and stamp-axle will weigh about 50 quintals, which, at \$8 per quintal, will amount to \$400. The principal part of the castings for the barrels we shall get from Sanchez at a reduced price. The masons are getting on pretty well with the walls of the wheel-pits, &c., considering the class of men; we expect they will finish the pit in a

fortnight more. Little has been done this week, on account of so many feast days. Some masons are employed building a wall, 4 feet wide, by the river; others paving the bottom of the river with large stones where it is very much broken up. Carpenters have nearly all the timber ready to put the wheel together. Sawyers are cutting timber for other work as fast as it is brought in. Smiths are also getting on pretty well with the iron work for wheel, stamps, &c. —The Mine: There is no alteration in the ground in the shaft. The men complained very much against the powder we received at the mine; we are now getting a much better class from Mexico, at \$16 per quintal. I trust with this powder they will make more progress in sinking. The water has increased but very little since we commenced. The ground in both San Jorge rise and stopes is much more favourable; consequently, they break a larger quantity of talras (snails) than formerly, which made me think the ley would fall off very much—it has certainly a little, but from assays made this week it is higher than we expected. In the winze sinking below the Esperanza level, 11 vars east of La Bomba shaft (now called Guadalupe), the lode is improving, composed of calcareous spar, with blue ore and pyrites, mixed with a little native silver. There is a smooth wall to the south. The lode altogether has a very promising appearance, and, no doubt, will improve in depth. In the winzes or bottoms below San Jorge workings the ore is still narrow, but of good quality, and will pay well for working; and from its appearance at present we think it will soon be as wide as we had it above. In the stopes east of La Bomba shaft, above the Esperanza level, there is a very good branch of ore, from which we get from 3 to 4 cargas per varia. We have to drive a level west from La Bomba shaft, above Angelita level, to communicate with San Jorge, for ventilation. There is a small branch of ore to commence on. All the other places are suspended at present, although some of them produce good metal, but in small quantities.

LAGUNA.—Mr. J. P. Sewell (consulting engineer at Real del Monte), March 25: Since I got your letter I called on Mr. Rule, and asked him to send you the plans of Laguna and Purisima; he promises to send one first on a small scale, and subsequently a larger one. Mr. Rule has stopped the shaft for the present, and commenced the level east; from this will cross-cut the vein to the north, in the hope that the indications which were seen may be again found on the north or lower wall of the vein. It was the opinion of Mr. Richards and myself (if you refer to my last letter) that the level should then be conamed, and Mr. Rule is now of our opinion, that it is far more suitable to carry out these works, where the ground presents a favourable aspect, than to wait until a particular depth is obtained, where we cannot tell how the vein may appear. When the mine is paying dividends it is very well to develop it by levels at fixed distances, but in the present case it is of more importance to discover metal, and then the rest is easy. By leaving the shaft for the present we shall be able to drive the level east, and work the Purisima adit for about the same expense as was incurred in the former. I informed Mr. Rule that I agreed to accept the post of consulting engineer of the mine, with the object of assisting as far as lay in my power, and without present remuneration, in view of the interest I now hold in Laguna. The shaft being stopped, I hope that work can be carried on in three separate places without any particular increase in the amount of wages. I will shortly endeavour to revisit Laguna with Mr. Rule, in order to assist in setting to work anew—and which I trust will prove a valuable addition to the property—the Purisima adit.

ESTARENA UNITED.—Thos. Roberts, April 26: At the Val Toppa Mine, we have cut the flat lode in the new cross-cut east, in the No. 2 level. The ends driving on this, and the new lode from the other two cross-cuts, are without change. At Pestarena, we have an improvement in the 33 end, driving south from Aquavite; the lode here is yielding 4 tons of ore per fathom, worth 1½ oz. of gold per ton. The ore being amalgamated from the Aquavite Mine is yielding better this month than we calculated. We shall, as usual, send you more particulars after our smelting, on Saturday next.

VAL ANTIGORIA.—Thos. Roberts, April 19: The end in the 30, on No. 2 lode, has been driven 9 metres south of winze; we expect to reach in this end the line of intersection of No. 3 to this lode in 22 metres more driving, where we are looking forth for an increase of ore. The lode in the 29, on this lode, has been driven back about 14 metres north of diagonal winze; the lode in this end is not to value at present, but in this driving we have gone through some ore, about 1 ton to the fathom. At present we are not doing any stopping on the reserves on No. 2 lode. On No. 1 lode we are stopping in the back of the 29 south by two men; the lode here yields 2 tons of ore per fathom. No changes in the adit end, driving north, neither is there in the cross-cut, west level, on the top of the main shaft. We are stopping in the bottom of the 30 by one miner; this stop yields 1½ ton of ore per fathom. We have cleared out, and secured the old cross-cut, west of the Alfonzo, and are now cutting into the bed of inferior marble; this rock is letting out plenty of water. Owing to the snow we have not been able to do any exploring on surface since my last. We expect to finish the repairs on the road leading to No. 1 mine next month.—Amalgamation: Since our last smelting we have amalgamated up to this date 57 tons of ore, and have obtained 3080 grammes of amalgam, which would yield if melted about 26 ozs. of gold.

WEST CANADA.—Capt. F. Williams, April 1: Huron Copper Bay: The stop in the bottom of the 29, east of Stephen's winze, will yield 2½ tons of ore per fathom. This stop, according to the present appearance, will give us a good quantity of ore during the year. The stop in the bottom of the 29, west of Palmer's shaft, will yield 2½ tons of ore per fathom. The stop in the bottom of the 29, east of shaft, is worth 2½ tons. The stop in the bottom of the 35, east of this shaft, will yield 2 tons of ore per fathom. The stop in the bottom of the 29, east and west of Powell's winze, on the fire-lode, looks well, and will yield 2½ tons of ore per fathom. The lode in the 69, west of Bray's engine-shaft, is still unproductive. The stop over the 35 still yields 3 tons per fathom. The lode in the winze sinking below the 35, east of this shaft, will yield 3 tons of ore per fathom.—Wellington Mine: The stop in the bottom of the 36, east of Mitchell's, will yield 2 tons of ore per fathom. The stop in the bottom of the 24 is worth 2½ tons per fathom. The lode in the 21, east of this shaft, is not changed since last reported on, it still yields 1½ ton of ore per fathom. Things generally speaking throughout the mine are going on in a satisfactory manner, and we hope to do well in our dressing department during the coming summer.

#### FOREIGN MINING AND METALLURGY.

Some Mons works have just furnished to the Belgian State Railways 500 iron sleepers, on the system of M. Achille Legrand. The sleepers are supplied at the rate of \$17.13, per ton. Official statistics have just been made up—and none too soon—in illustration of the commerce of Belgium in January, as compared with January, 1868, and January, 1867: of pig, 2107 tons against 7467 tons in January, 1868, and 11,110 tons in January, 1867; of plates, 5034 tons, against 11,156 tons, and 897 tons; of rails, 4710 tons, against 4344 tons, and 3121 tons. We take a general view of the exports of iron rails, pig, castings, &c., we find that 1869 has commenced favourably for Belgian industry. January presenting a sensible progress, as compared with the corresponding month of the two previous years, the total exports being 15,463 tons in January, 1869, and 11,842 tons in January, 1868, and 11,842 tons in January, 1867. The imports of minerals into Belgium increased as compared with the corresponding months of 1868 and 1867—an augmentation which confirms the opinions expressed as to the prosperous condition of metallurgical industry during the last few months. Thus, 31,955 tons of minerals were imported into Belgium in January, against 31,955 tons in January, 1868, and 15,057 tons in January, 1867; the augmentation in January will be seen to have been considerable. An amendment to the Budget for Public Works increases by \$6000, the credit allowed for railways and material; this addition is made by reason of the rise in the price of iron. M. Jamar, the Minister of Public Works, in proposing the additional credit, declared that he did not regret the increase. This declaration of the Minister will, of course, be much more agreeable to Belgian industrials than the bitter criticisms made by M. Jamar on the manufacture of rails in Belgium, when he was proposing the rectified Budget. It would seem that M. Jamar has profited from the first opportunity to attenuate or remove the bad impression occasioned by the public censure which he had previously passed upon Belgian metallurgical industry. The condition of the Belgian metallurgical markets would be extremely satisfactory but for the strikes which threaten to disturb the current of Belgian industry generally. A ministerial decree has just authorised the house of Goffin to add to its Clabecq Iron Works six furnaces, a rolling mill for plates, and a steam-engine of 60-horse power. The Charleroi Association of Forgemasters has presented an augmentation over the imports of the corresponding months of 1868 and 1867—an augmentation which confirms the opinions expressed as to the prosperous condition of metallurgical industry during the last few months. Thus, 31,955 tons of minerals were imported into Belgium in January, against 31,955 tons in January, 1868, and 15,057 tons in January, 1867; the augmentation in January will be seen to have been considerable. An amendment to the Budget for Public Works increases by \$6000, the credit allowed for railways and material; this addition is made by reason of the rise in the price of iron. M. Jamar, the Minister of Public Works, in proposing the additional credit, declared that he did not regret the increase. This declaration of the Minister will, of course, be much more agreeable to Belgian industrials than the bitter criticisms made by M. Jamar on the manufacture of rails in Belgium, when he was proposing the rectified Budget. It would seem that M. Jamar has profited from the first opportunity to attenuate or remove the bad impression occasioned by the public censure which he had previously passed upon Belgian metallurgical industry.

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# South Polberrow Tin Mining Company (LIMITED).

CAPITAL £8000, DIVIDED INTO 4000 SHARES OF £2 EACH.

Deposit 5s. per share on application, and 5s. on allotment.

Balance, if required, to be called for by instalments of 5s. each, and at intervals of not less than three months.

#### DIRECTORS.

CHARLES MORRIS, Esq., South-street, Grosvenor-square, W., Director of the Bank of Australasia.

E. G. FELLOWE, Esq., Surbiton, Surrey.

LOUIS BAMBERGER, Esq., Bush-lane, E.C., Merchant.

BANKERS—LONDON AND SOUTH-WESTERN BANK, 29, Lombard-street, London, E.C.

SOLICITOR—F. W. SNELL, Esq., George-street, Mansion House, E.C.

SECRETARY—Mr. W. L. ALLEN.

OFFICES,—160, GRESHAM HOUSE, OLD BROAD STREET.

#### PROSPECTUS.

The object of this company is to purchase the lease of and work a valuable tin mine, called South Polberrow, situated in the parish of St. Agnes, one of the best tin districts in the county of Cornwall.

The sett is bounded on the west by Great Wheal Charlotte, which yielded large profits; on the east by Polbreen; and on the north by Wheal Friendly, Wheal Trevaunance, Polberrow, Wheal Kitty, and other celebrated tin mines. It is traversed by the productive lodes of Polbreen and Wheal Kitty, the latter paying regular dividends, and lies parallel with the enormously productive lodes of Polberrow, and other rich mines of the district.

In this sett there are thirteen well-defined veins or lodes, all of which have produced large quantities of tin, and afford evidence of a highly mineralised property. A fine cross-course is in immediate proximity to that part proposed to be opened up, which can be rendered advantageous for cross-cutting to the various lodes.

A shaft has already been sunk 40 fathoms deep, which communicates with an adit driven on the course of one of the lodes, and which has been extended about 50 fathoms into the sett from the eastern boundary. In this adit for about 30 fathoms in length, the lode has been taken away on tribute, the excavations even reaching the surface.

The mine has been inspected by practical agents, whose reports fully warrant the shareholders in expecting most satisfactory results.

The peculiar advantages presented by this mine, are—first, its geological position, being situated on the junction of granite and killas, one of the most important features in the mineral-bearing districts of Cornwall. Four-fifths of the rich mines in the county are similarly placed, as shown in the following table.

#### MINES SITUATE ON THE JUNCTION OF GRANITE AND SLATE.

Name of Mine.	Outlay.	Dividends.
Botallack	£ 18,250 0 0	£ 105,650 0 0
Carn Brea	30,000 0 0	280,500 0 0
Dolcoath	46,137 5 0	316,648 0 0
East Bassett	18,944 0 0	67,512 0 0
Provident	11,558 13 4	98,700 0 0
St. Ives Consols	10,105 0 0	461,070 0 0
South Caradon	640 0 0	513,600 0 0

#### Mining Correspondence.

##### BRITISH MINES.

ABERDAUNANT.—April 27: Hitherto all the ore found in the mines on the Great Van lode has been on the north side; but in the Aberdaunant Mine, in clearing out an old winze on the south side of this lode, we have found an excellent lode, with capital lead in it. Having already lead on the north, and now finding it on the south, we may fairly expect that the Van lode, 30 ft. wide, in this part of our set, will be found rich in lead throughout. If this be so we shall have the finest mine in Wales. More on this head in a few days. Both branches on the other lode on the hill are looking well and promising.

BWADRAIN CONSOLS.—R. Northey, April 26: The lode in the 35 west is 3 ft. wide, and worth 18 cwt.s. of ore per fathom. I could not see the 45, having cut a large feed of water, more than the present lift of pumps can pump; we are preparing to put down a larger lift, to enable us to keep the mine clear of water; a part of the new lift is delivered, and no time will be lost in fixing the same. No alteration in any of the stopes, and all other operations are going on as usual.

BWLCH CONSOLS.—R. Northey, April 27: The lode in the 60 is 5 ft. wide, all saving work, and improving as we progress eastward. The lode in the 50 is 2 ft. wide, worth 18 cwt.s. per fathom. The lode in the 30 is 2 ft. wide, carrying a mixture of lead ore. The stopes throughout the mine are producing about their usual quantities of lead ore. The shaft in the crusher-rowl broke off close to the shoulder on Friday last; it is all put right, and working well.

CAPRI CORNWALL.—B. Pryor, April 27: The ground in the 10, cross-cut, driving north of the engine-shaft, is a little more favourable for progress, and is impregnated with muriatic. The ground in the 70 cross-cut, driving south of shaft, is also improved, and the end is now in a beautifully mineralised killas.

CARADON CONSOLS.—S. Bennetts, April 27: The sinking of the shaft below the 78 progresses very satisfactorily; ground good, and without any water. The go-sam lode in the 78 west is much the same as we found on the west side of the cross-course, as to general composition, only not quite so wide. In the west end the lode is 2 ft. wide, and containing more ore than we have hitherto seen in it. The north cross-cut is apparently getting into somewhat easier ground, but it is not yet clear of those parry branches.

CASHIWELL.—J. Peart, April 24: The drift below Scar limestone is still very hard; the vein has improved a little both for mineral and ore. No. 1 stope is producing some very good ore; it is considerably richer in going up than was expected at first. The Slaty Hazel is yielding a good deal of bone, and contains part ore, and easy to work. At Dauke's the vein is much the same as last reported, but some better pieces of ore have been got: 40 tons of lead ore will be sampled next week.

CENTRAL MINERA.—Wm. Davies, April 29: The lode in the 50 yard level north contains occasional stones of lead; the ground is also very promising for improving, but for the present operations are suspended waiting timber. The stopes in bottom of this level yield saving work for lead. We have a small parcel of lead ready for sale. The dry weather has put a stop to all dressing operations, from want of water.

CHANTICLEER.—Wm. Wasley, April 29: Last Saturday being our setting-day, I set the shaft to sink below the 110 yard level, for this month, at 60s. per yard, and 80s. per ton for ore; the men to fill and land all the stuff, pay for drawing, &c. I am glad to say that the lode in the bottom of the shaft is progressing some very fine lumps of ore, and looking very promising.

CUDDRA.—F. Puckey, April 28: There is no particular change to notice in any part of the mine since last report. We commenced to-day to take down the tin part of the lode in the back of the 142, west of Walker's shaft, which is still very good for tin, and of the same value as last reported. We shall be able to report more fully next week. All our operations are being forced on as fast as possible.

CWM DARREN.—R. Williams, April 28: Saturday last was our measuring and setting day, and I set the 20 to drive east, by six men, at 16s. per fathom; the ground is rather hard, as may be seen by the price. The lode produces a little ore on the south wall, and looking to the lode gone down in the level above, we may hope to see a good improvement here shortly; the end has been advanced about 8 ft. east from the shaft, and if there is no dip in the ore seen above we must be entering it soon here. The lode in the 20 west is large, but hard and unproductive, at present requiring further exploration to open new ground, and thereby prove its value; I would advise the driving of this end. The lode in the adit west has a good south wall, with spots of lead, but the leader is not so productive as it was, notwithstanding which the end is going into mineral ground, and judging from indications, conditions, &c., is surpassed by but few mining grants in this district. The features of this part of the property are more in keeping with the Old Darren as regards strata, formation of lodes, &c., and, in my opinion, holds out more promise than any other part of the sett.

DEVON AND CORNWALL UNITED.—E. James, April 28: There is no particular change in the ends since our last report; but I am glad to say that the tribute pitch in the back of the 22, west of engine-shaft, has very much improved, and is now worth full 3 tons of copper ore per fathom; this is a very important point, with the fact of its being in whole ground to surface, which is from 50 to 60 fathoms. The tribute pitch in the back of the 34 is also a little improved, and the men earning good wages.

DEEP LEVEL.—April 28: In the deep level west, on Pant-y-Go vein, the lode is 18 in. wide, showing spots of lead ore, and looks promising. The lode in the deep level south, west on deep level vein, is 2 feet wide, containing limestone, spar, and spotted with ore. In the 204, east of winze, on Pant-y-Go vein, the lode is poor. In the 204, west of Eytow's shaft, on Pant-y-Go vein, the lode is small and poor at present, being disordered by a cross-joint. The lode in the 174 west, on Pant-y-Go shaft, is 3 ft. wide, composed of limestone and clay. The lode in the 202, east of cross-cut, on Pant-y-Go vein, is 3 feet wide, principally limestone, with spots of ore, but not much to value. No change in our tribute pitches.

EAST DARREN.—April 27: In the 116, east of Taylor's, the lode is 6 ft. wide, yielding 1½ ton of lead ore per fathom. In the 104 east the lode is 2 yards wide, yielding 1½ ton of per fathom. In the 92 east the lode is 1½ yard wide, not looking quite so well, now yielding 1½ ton of ore per fathom. In the 92, west of boundary, the lode is 3 feet wide, producing stones of ore at times. The winze sinking under the 80 is communicating to the level below. The lode in the winze under the 80 east is 5 feet wide, yielding a little ore, but not to value. In Skinner's shaft, sinking below the 44, the ground is favourable. In Blaenewm new shaft, now down 6 fathoms and 2 feet below the 20, the ground is good for sinking. The ground in the cross-cut north, at New Pool, is hard for exploring. The ground in the eastern cross-cut north, from surface, is also hard. Our tribute pitches continue to yield their usual quantities of ore. We shall sample to-day 75 tons of lead ore.

EAST GUNNISLAKE AND SOUTH BEDFORD CONSOLS.—James Bray, April 28: The lode in the 16 is 5 ft. wide, composed of spar and peat, with good stones of ore—a kindly, fine lode. We have cleared up the Impham shaft to a depth of 7½ fms., below the Impham adit. I find the eastern end thereof is all taken away; in the western end the lode is 5 ft. wide, composed of spar, capel, and peat, with stones of ore. No change in the winze sinking in the bottom of Impham adit.—P. S. The lode in the Impham adit is 10 ft. wide, producing 6 tons of ore per fathom.

EAST ROSEWARNE.—C. Glasson, April 29: In King's shaft, sinking below the 115, the lode is 12 in. wide, worth 40 per fm. In the 115, west of shaft, the lode is looking a little better—15 in. wide, worth 50 per fm. In the 115, east of

South Frances .....	9,293	0	0	.....	185,838	16	0
Tincroft .....	64,000	0	0	.....	123,300	0	0
Treasvean .....	4,080	0	0	.....	449,064	0	0
West Bassett .....	10,500	0	0	.....	160,200	0	0
Wheat Bassett .....	2,624	0	0	.....	326,912	0	0
Wheat Buller.....	14,464	0	0	.....	287,824	0	0
Total.....	£230,605	18	4	.....	£3,126,818	16	0
Total dividends .....				.....	£3,126,818	16	0
Paid-up capital .....				.....	230,605	18	4
Balance .....				.....	£2,896,212	17	8

Profits in excess of paid-up capital, £2,896,212 17s. 8d., irrespective of present market value of shares.

Secondly.—The lodes traversing the sett have proved very rich in the mines immediately to the east and west of the boundary; while the workings in the grant have already opened upon good courses of tin, similar to those found in the mines to the east and west at the same depth, thus placing its value beyond doubt.—Thirdly. The mine can be worked to a considerable extent without the aid of expensive machinery, there being sufficient water power for all practical purposes; and the rich lodes can be opened upon by the driving of adits about 60 fathoms deep, an advantage seldom met with in Cornwall.—Fourthly. It is within two miles of the shipping port of St. Agnes, rendering the shipment of ore easy, and the carriage of materials cheap.

From what has been stated, it is obvious that the sett contains the great elements of success; it is surrounded by rich mines; there are several lodes of an unusually rich description, traversing its entire length; the produce of tin has been rich and profitable, and there is a certainty that a further small outlay, would place it amongst the richest mines of the county.

The sett is held under lease for 21 years (from 14th December 1866) from his Royal Highness the Prince of Wales, as Duke of Cornwall, at a minimum rent of £20 per annum, to merge into the royalty of one-fifth of all the tin sold prior to the erection of an engine, and one-twentieth afterwards.

Some fine specimens of the ore may be seen at the offices of the company.

Prospectuses, plans, forms of application for shares, and every information, may be obtained of the secretary.

shaft, the lode is 18 in. wide, worth 40 per fm. In the 105, west of shaft, there has no lode taken down since my last report. In the 105, east of shaft, the lode is 12 in. wide, worth 40 per fm. In the 95, east of shaft, the lode is 15 in. wide, worth 32 per fm.

EAST SNAEFELL.—Joseph Vivian and Son, Wm. Thomas, Jun.: No alteration in Bassett's engine-shaft, sinking under the 20. In the 20, driving east of Bassett's shaft, the lode is large, chiefly floatan, with spar and spots of copper ore. The flat-red shaft is completed to the 10, and the plat will be cut and penthouse put in, &c., so that we shall commence to sink below within a week from the present time. The 10 end east has a favourable looking lode in it, producing stones of copper ore and muriatic.

EAST WHEAL BASSET.—Wm. Nancarrow, April 28: In the 140 cross-cut south we are getting on pretty well; drove 2 fms. 1 ft. last month, and expect to have about 6 fms. further to drive to cut the south lode. In the 130 cross-cut, east of new shaft, we have about 2 fathoms more to drive to cut the south lode. The lode in the 130, west of No. 2 cross-cut, is 2½ ft. wide—a very kindly lode, but at present nothing to value. The stope in the back of the 130, west of No. 1 cross-cut, is worth 80 per fm. for copper ore. The lode in the 130 west is 1½ ft. wide, producing stones of copper ore; we fully expect an improvement in this end, very shortly. We have this week commenced a cross-cut north, at the 130, new shaft, to cut the tin lode; this will be 30 fms. deeper than it has been seen in this part of the mine; we calculate to have about 20 fms. to drive to cut the lode. We sold on April 29, 2417, worth of tinstuff.

EAST WHEAL GREENVILLE.—G. R. Odgers, Wm. Bennetts, April 24: The lode in the 120, east from the engine-shaft, is 2½ ft. wide, of quartz, &c., containing good stones of copper ore; a very promising lode. The lode in the rise above the 110 is worth 80 per fm. The lode in the rise above the 95 will produce 2 tons of ore or 14 per fm., and we think this will still further improve. In the 85 the lode is getting a little larger, and throwing more tincture; we, therefore, believe that we shall shortly find an improved lode. The lode in the 75 east is worth 1½ ton of ore per fathom. We have no change to report in the 65. In the 55 the lode will produce 1½ ton of copper ore per fathom, and we are glad to say that the lode is getting uglier again; this is the indication we have been looking for. There is no alteration in the back of this level. In the 45 fathom level east the branches are coming together; they contain green carbonate of copper, embedded in gossan; and, seeing that the lode in the 55 did not make until these branches became united, which was at 15 feet from the cross-course, we have strong hopes of a similar thing here. We are pushing on the side tie with all the force we can bring to bear. The men are making excellent progress with the 25 cross-cut, having already driven 9 fms.

G. R. Odgers, W. Bennetts, April 29: The lode in the 120, east from the shaft, is 2½ ft. wide, with good stones of copper ore. The lode in the rise above the 110 is worth 80 per fm. There is no alteration in the 110 end. There is a very good lode in the rise above the 95 east, 20 in. wide, worth 2 tons of copper ore, or 15½ per fm.; this is laying open good tribute ground. The lode in the 85 east is 18 in. wide, composed of friable quartz and black ore, which is getting very wet; we, therefore, believe we shall have an improved lode shortly. The lode in the 75 east is 18 in. wide, worth 1 ton of copper ore per fathom. The lode in the 65 east is 1 ft. wide, composed of stones of copper ore, embedded in a soft evan, which is throwing pretty much tincture. The lode in the 55 east is 18 in. wide, worth 1 ton of copper ore per fathom; here the leading part of the lode is getting softer and more uglier, letting out water; to the south of the lode there is a soft white granite. These we consider very favourable features for a speedy improvement. The pitch above this place is looking very well—a good lode, and which will be re-set at a low tribute. In the 45, east from the side-tie with all speed; we can call to each other, therefore we think we shall not be long before a communication is effected. The men are getting on very well with the 25 cross-cut; already driven upwards of 10 fms.

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at 31. 10s. per fathom. In consequence of so much water flowing from the lode in the stopes at the 70 fm. level, we thought it advisable to suspend operations until the cross-course is cut through at the 78, which will drain the level above. We have a tolerable good pile of ore on the floors, and if all be well we shall soon add more to it, so as to enable us to sample.

S. Michell, April 23: I find to-day the capel that I have been expecting to come in the new shaft has made its appearance, impregnated with copper pretty thickly. The lode in the 78 west is very much improved since Saturday last.

NEW WHEAL TOWAN.—R. Pryor, April 28: There has been no change in this mine since the report for the meeting.

NORTH CROFTY.—J. Vivian and Son, W. Thomas, Jun., April 29: The lode in the winze sinking under the 150, west of Petherick's shaft, is worth 107. per fathom for tin. The lode in the winze under the 183 west is worth 187. per fathom for tin. The lode in the 196 west is worth 181. per fathom for tin and copper ore. The lode in the winze sinking under the 196 west is worth 227. per fathom for tin and copper ore. The 208 end west is being pushed towards the aforesaid winze at the rate of 5 fms. per month—now 15 fms. short of it. There has been no alteration in the eastern levels of late. The tribute pitches produce their usual quantities of tin.

NORTH DOWNS.—F. Pryor, J. Williams, April 27: In the 85, west of King's engine-shaft, the lode is still in a disordered state, and split up in branches, but as this end is letting out water freely we look forward to favourable results. In the sump-winze, sinking below the 60, we have a good load of ore, worth 207. per fm., but during the past week we have found our lift unequal to the water, and we have lost no time in putting down a larger one, which has put us in a position to continue the sinking without delay until we reach the 70. The 60, west of cross-cut, on the south lode, is improved since last report, now worth 87. per fm., a promising lode. The rise in the back of the 49 is producing stones of ore, but not to value. The slope in the back of the 60, east of winze, is worth 87. per fm.

NORTH POOL.—Joseph Vivian and Sons, F. Clymo, April 27: Ballarat shaft has been sunk from the 40 to the 52 fathom levels, and we are now driving the latter east and west of the shaft, on the course of the lode, by six men and one boy, at 12. 10s. per fathom, having extended it about 2 fathoms in each direction. In this level the lode is about 3 feet wide, and contains occasional spots of yellow copper ore, with mumble and blonde. From the western end there is more water issuing as we advance, which is a favourable indication for an increase of copper, and we think it probable that a good discovery may be made in this level. We have within the last day or two cleared out the 24, east of Ballarat shaft, which had been filled with rubbish by the previous workers, and find the level extended about 8 fathoms from the shaft. A bunch of copper ore was passed through in this drivage, and worked both in the back and the bottom. In the end the lode is about 2 feet wide, and contains yellow copper ore, combined with blonde, and a favourable looking quartz. As the appearance of this end is favourable, we have resolved to push it forward, believing that there are good chances of our thus making a discovery of value. We are driving the 30, east of sump-winze, on the middle lode, and have pleasure in saying that the prospects at this point are very encouraging. When we commenced the lode was small, and contained only a small quantity of copper ore; it has, however, gone on improving, increasing in size, and becoming more productive of copper; and in the present end, which is about 3½ fathoms east of the winze, the lode is over 1½ foot wide, and will yield 2 tons of good copper ore per fathom. This level is going towards the old North Pool Mine, in which such a large deposit of copper ore was met with. There are circumstances having such a highly favourable bearing on this mine, and which cannot fail to give it an increasing value, independently of the discoveries which may be made in the operations already referred to. Of these we may notice, in the first place, the valuable bodies of copper ore which are being met with in the adjoining mine, West Tolgus, and which are being found richer as the workings of that mine are being extended westward, and nearer to us. In the next place, we find that by the extension of our workings, and those of our neighbours, the water is being drained from the old mine, so that we fully anticipate being able, in the early part of the summer, to commence operations in some of the levels of that part of our sett where there is profitable copper ground. By carrying on the operations which have been referred to, our future expenditure will be the same as for some time past. Our ore sales will depend on our discoveries.

NORTH RETTALLACK.—G. R. Odgers, Jas. Harris, April 24: The water is going down slowly, but it is not yet down to the 20; we are hoping everyday to meet with something at the 20, from Great Rettallack, to draw this shaft, and seeing the branch of lead in that level, we hope to sink this shaft (No. 1) and prove whether it will continue. OKEŁ TOR.—John Rodda, April 28: The part of the south lode now being carried in the rise in back of the 80 east is 4 feet wide, of a highly promising character, and yielding 5 tons of good quality ore per fathom. Tregoning's slope, in the back of this level, will yield from 2 to 3 tons of ore per fathom. In Wilkie's slope, in back of the same level, we have cut through the lode, and find it to be 4 fms. wide, consisting of quartz, capel, peach, and good branches of ore to the amount of 5 or 6 tons per fathom. In the 80 fm. level rise, west of the cross-cut, the ground is stiff, consequently our progress in rising is rather slow; the lode, however, is looking very kindly, and producing about 3 tons of ore per fathom. The end and slope in the 65, east of Gerry's cross-cut, will yield 5 tons of pretty good quality ore per fathom. The part of the lode being carried in the winze sinking below this level is poor at present; but I regard the change as only temporary, and think we have only to go through a poor floor of ground to get into a productive lode again. The 65 fm. level cross-cut south is still in a congenital channel of ground, and branches containing capel, spar, pran, and mumble are frequently being met with. Burley's pitch, in the 50, has fallen off in value during the past fortnight, but is looking better at present. The other four pitches on the south lode are yielding 3 tons of ore per fm. each. The three pitches on the north lode are of about the same value. We are busy in dressing for our next April sampling, which I calculate will fetch about the same amount as our March sampling realised.

OLD GUNNISLAKE.—F. Phillips, April 23: Parker's Shaft: The capels spoken of in my last seem to increase in size, so that we have it the whole width of the shaft, in consequence of which our progress is not as I could wish in sinking; nevertheless, I like the appearance of the lode better, it seems to be undergoing a change, not being so heavily charged with iron; altogether, it is a large promising lode. In the deep adit cross-cut we have considerably more water, which indicates that we are getting near a change of ground or lode; I should think the latter. About 5 ft. has been driven since my last.

PEDN-AN-DREYA UNITED.—W. Tregay, J. Thomas, April 24: Sump: In the 140 east the lode is worth 107. per fm. In the 140 west the lode is worth 407. per fathom. In the 120 west winze the lode is worth 107. per fm. In the 120 north cross-cut the ground is tolerably favourable for driving, and fair progress is being made. In the 100 east rise the lode produces good stones of tin; ground favourable for rising. In the 68 east the quality of the tinstone is somewhat improving.—Cobblers': Martin's Lode: In the 120 west end the lode produces occasional good stones of tin.—North Lode: In the 90 east end an additional part of the cross-course has made its appearance, disturbing the lode, which produces good bunches of tin, but has hitherto proved very irregular. In the 90 west end the lode is worth 207. per fm. The lode in bottom of the north shaft, sinking below the 55, is worth 407. per fm. In the 55 west end the lode is worth 407. per fm. In the 55 east the lode is worth 127. per fm. In the 47 west the lode is worth 207. per fm. In this level we have this week been making a trip-plat at Cobblers' shaft, and cutting ground on the line of railway to the north lode. We expect to have finished this and to have made good progress by the end of next week with the road. No other changes to report.

PENHALE UNITED.—R. Pryor, H. Bennetts, Jos. Pryor, April 28: Friday last being our pay and setting, the following bargains were set:—Phillips's engine-shaft, to sink below the 90, by nine men, at 187. per fathom, and 197. per fathom if 3 fathoms are sunk; the lode in this shaft continues just the same as for some time past, worth 1½ ton of lead per fathom. The 90 to drive north of shaft, by four men, at 47. 5s. per fathom; lode worth 10 cwt. of lead per fm. This level to drive south of shaft, by four men, at 51. 10s. per fathom; the lode is large, and only at this time producing a little lead. Hall's shaft to sink below the 90, by six men, at 147. per fathom, and if 3 fathoms are sunk 157. per fathom; the lode here is worth 10 cwt. of lead per fathom. The 90 to drive north of this shaft, by six men, at 31. 10s. per fathom; lode worth fully 12 cwt. of lead per fathom, with a good appearance. This level to drive south of shaft, by six men, at 41. 15s. per fathom; lode 3 feet wide, and worth 5 cwt. of lead per fathom. The 80 to drive north of shaft, by four men, at 41. 15s. per fathom; this end is letting out water freely, and the lode presenting a better appearance than for some time past. We have also set our usual number of tribute pitches, varying from 51. to 81. per ton. Our pay and setting went off very satisfactorily, and all our machinery is in good condition, and working well. We intend to sample again in about a fortnight's time.

PENHALE WHEAL VOR.—W. H. Martin, April 27: The men are now driving a cross-cut north in the 110 from the engine-shaft to intersect the lodes; in the end the ground is intermixed with a great deal of spar, and in consequence of this the progress is slow. In the 74 we are making satisfactory progress in cutting the bob-plat. In the 75 fm. level cross-cut, south from Ritchie's shaft, the ground is mixed up with capels, and letting out a quantity of water; from present appearances I think there is a part of the lode further south. Our machinery is in good working order.

PRINCE OF WALES.—J. Gifford, W. Gifford, April 27: On Saturday the following bargains were set: To drive the 65 east, by six men, stent the month, at 87. 10s. per fathom; here the lode is 8 ft. wide, but poor, principally composed of capel. To drive the 65 west by six men, stent to the western cross-course, at 7. per fathom; the lode is 2 ft. wide, worth 67. per fathom. The slope in back of the 65 east by four men, the month, at 65s. A slope in back of the 65 west, by four men, the month, at 55s. per fathom. To drive the 55 east by two men, the month, at 55s. per fathom; the lode is 1½ ft. wide, consisting of capel and gossan. To drive the 55 cross-cut south by four men, the month, at 61. per fathom. To drive the 55 west by four men, the month, at 51. per fathom; the lode is 2 feet wide, principally composed of capel and quartz. To drive the 55 east, on new south lode, by two men, the month, or cut the cross-course, at 65s. per fathom. To drive the 55 cross-cut north, by four men, the month, at 90s. per fathom. A slope in back of the 45 west, by four men, the month, at 50s. per fathom; the lode is worth 127. per fm. To cut down new shaft 13 ft. long and 7 ft. wide, by six men, the month, at 60s. per fathom. A pitch in back of the 45, east of cross-course, by two men, for two months, at 12s. 6d. per produce, and 10s. tribute. We hope to sample 100 tons this week.

PRINCESS OF WALES.—T. Foote, G. Rickard, April 28: The sinking of Harris's engine-shaft below the 20 fm. level is going on very satisfactorily; the ground is of the same mineralised character as stated in our former reports. The ground in the 20 cross-cut, driving north, towards Vosper's lode, is without any material change since last week.

PROSPER UNITED.—J. Nicholls, J. Hall, C. Lobb, April 28: In the 100 east we have driven a cross-cut north through the elvan, and intersected the north lode; it contains but, not being cut through we cannot state its size or value. The rise in the back of the 100 west is worth 157. per fathom. The slope is worth 127. per fathom. The 90 west is without change. The two slopes in the back of this level are worth fully 107. per fathom. The winze in the bottom of this level is worth 127. per fathom. The lode in the 80 west is now 3 ft. wide, worth 127. per fathom. The three slopes in the back of this level are worth on an average about 107. per fathom. The 70 west, on Pope's lode, is producing saving work. The winze sinking below the 60, on Pope's lode, is producing occasional stones of tin. No change to remark on in any other part of the mine.

REDMOOR.—T. Taylor, April 29: We have removed the wheel to take the water from Redmoor adit; this will give a supply through the summer to stamp the tin gossan, which we can now break, the ground being dry. The lode in the 25 east is 1 ft. wide, principally mumble and pran, with stones of tin and copper, but not to value. In the slopes the lode is about 18 in. wide, containing peach, wolfram, mumble, and tin, worth about 61. per fathom.

ROARING WATER.—H. Thomas, April 27: Grady's lode, west of caunter is open on 5 feet wide, and on the north or footwall at present it is principally made up with spar, friable peach, micaeons iron, purple and grey ore, a strong looking lode. The ground is hard, but I think it will soon change for the better. I see very little change in the rise, rich bunches of purple grey and yellow ore, ground easy.'

SOUTH CONDUROW.—J. Vivian and Son, W. Williams, April 24: We are making good progress in clearing the stuff from King's shaft at the 82. In the 71 west the south part of the lode, through which we are driving, is traversed by rich seams of tin, and patches of yellow copper ore. In the 61, west of King's shaft, the width of 5 ft. of the lode which we are carrying is worth full 657. per fathom. In a winze which we have commenced to sink under the 61, west of King's shaft, at about 15 fms., behind the end, the lode is worth for length of winze, which is 2 fms., full 557. per fm. In the 51 north, west of King's shaft, we have cut 3 fms. into the flat lode, which is tinstone of fair quality. In driving the 51, west of the cross-cut, on one of the north branches of the tin lode, of which there are three within 13 fms., of about the same size and value, the lode is 1 foot wide, and worth from 87. to 107. per fm.; driving at 11. 5s. per fm. In the 49, west of Vivian's shaft, the lode is about 2 ft. wide, and worth about 257. per fm. In the other levels, &c., there is nothing requiring notice.

SOUTH DARREN.—John Boundy, W. H. Boundy, April 24: Setting Report:

The lode in the 70 west is 2½ ft. wide, and presenting a favourable appearance for further improvement; present value for lead and copper ore, 207. per fm.; set to six men, at 91. 10s. per fathom, stent the month. The winze sinking below the 60 west measured to-day 7 fms., 1 ft. 6 in.; we hope to have this down to the required depth to meet the 70, driving west, by the end of next month. The lode in the 60 west is 18 in. wide, containing copper, carbonate of lime, and lead ore, but not enough to value; set to six men, at 81. 15s. per fathom, stent the month. To stop the back, over the 60 west, by six men, at 80s. per fm.; the lode is 2½ ft. wide, and worth for lead and copper ore 127. per fm. To stop the back over this level, west from the winze, by six men, at 75s. per fathom; the lode is 2 ft. wide, and worth for lead and copper 137. per fm. To stop the back over this level, east from the winze, by six men, at 80s. per fathom; the lode is 2½ ft. wide, worth for lead and copper 107. per fm.; we expect this stop will improve as we go up. The lode in the 50 west is looking more promising; set to four men, at 67. per fathom, stent the month. To stop the back over the 50 west, by six men, at 80s. per fathom; the lode is 2½ ft. wide, worth for lead and copper ore 127. per fm. To stop the back over this level, east from the winze, by six men, at 75s. per fathom; the lode is 2 ft. wide, and worth for lead and copper 137. per fm. To stop the back over this level, west from the winze, by six men, at 75s. per fathom; the lode is 2 ft. wide, and worth for lead and copper 127. per fm. To stop the back over this level, east from the winze, by six men, at 75s. per fathom; the lode is 2 ft. wide, and worth for lead and copper 137. per fm. 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industrious portion of the Irish community, we feel called upon to express our conviction that unless Ireland receives some substantial benefits during the present parliamentary session the disestablishment of the Protestant Church will not much longer secure to the Government the cordial support of its Irish members.

Mining Shares, being mostly dealt in by those who also take an active interest in railways, have been greatly neglected this week, the only other feature worthy of particular notice being that the extraordinary low price of the General Mining Company for Ireland shares, to which we lately called special attention, has attracted increased demand, resulting in an advance of upwards of 60 per cent. on the last quotations—*i.e.*, from 10s. and 12s., to 20s., at which they remain firm. Connoree shares induced purchases almost for the same reason, and, therefore, rose from 2s. 6d. to 2s. 9d. per share. Mining Company of Ireland (7s. paid) declined from 11s. to 10s. 15s., but Wicklow Copper shares (2s. 10s. paid) remain steady at 11s.

The GRASS VALLEY CONSOLIDATED MINING COMPANY has been incorporated for the purpose of developing a property situated in the well-known Grass Valley district, Nevada county, California. The "Doran, Murphy, and Co." and "Bulger and Co.," the names by which the claims have hitherto been known, comprise some 2300 ft. in length of the productive Eureka vein, which averages about 2 ft. in width. Mr. John Arthur Phillips, who is generally well acquainted with this mining district, states that Grass Valley is probably the most prosperous quartz mining town on the Pacific coast; and referring to the Eureka Mine, which is on the western extension of the vein proposed to be worked by this company, Mr. Phillips mentions that in 1867, when he had an opportunity of examining the accounts, the gross produce for the previous year had been no less than 115,210*t.*, while the dividends amounted to 72,000*t.* The belief at one time entertained that the quartz veins of California would become impoverished in depth has been abundantly disproved by the experience of the last ten years, since a permanent decrease of the production has very rarely occurred in any extensively and continuously worked vein, while Hayward's mine, which has reached a depth of 1200 ft., is more productive than at any former period. Upon this point, Prof. Silliman—an American authority of considerable repute—has stated that there has been a progressive increase of gold "tenor," with an increased depth—thus, down to 200 ft. yielding a little less than 2*s.* per ton; to 400 ft., 7*s.* 8*d.* per ton; and to 600 ft., 10*s.* per ton. Although Mr. Phillips has not had an opportunity of examining the claims acquired by the Grass Valley Company, yet he knows them to be situated in the midst of one of the most productive mining districts of California, and is of the opinion that a well-defined and continuous vein thus situated should offer every inducement for the vigorous prosecution of mining operations, as it would probably, if economically and judiciously worked, yield large quantities of remuneratively auriferous quartz. It is mentioned that the necessary preliminary mining operations have been completed, and that the mineral products at the depth reached—186 ft.—correspond in character with those of the Eureka, and it is said that the result of the assays made are in the highest degree satisfactory, some hundreds of tons of ore having been extracted. It is stated that since entering into the contract with the vendor the rich vein continuous between the Eureka and the company's property has been proved at corresponding depths to yield results as gratifying as those of the Eureka. A contract has been made for the purchase of the entire property (exclusive of the plant) for 65,000*t.* cash, and 3500 fully paid-up shares. The sum of 65,000*t.* includes the whole of the legal and other expenses up to the allotment of shares, and also the cost of the guarantee, by which the shareholders' risk is reduced to a minimum, the vendor having arranged, in consideration of the purchase-money, that the entire capital of the company shall be absolutely guaranteed a minimum annual dividend of 5 per cent. for 33 years (provided the whole of such capital shall not have been sooner repaid in dividends out of the profits), such guarantee to be by transfer or deposit of Consols and other Government securities. After these arrangements shall have been completed, the company will have a working capital of 25,000*t.*, of which 10,000*t.* will be required for the plant. The balance, it is believed, will be ample to place the mine in a position as to dividends equal to some of the best mines of the district.

The NEW WHEAL CHARLOTTE TIN AND COPPER MINE is about to be worked on the Cost-book System, in 4000 shares, upon which 5*s.* per share is payable on application. It is mentioned in the prospectus that the district in which the mine is situated has long been celebrated for rich and profitable tin and copper mines. It is in close proximity to the south to that well-known and highly productive mine, Great Wheal Towan, which gave a profit of about 200,000*t.*; immediately to the north is Great Wheal Charlotte, which mine, with an outlay of a few hundred pounds, gave a profit of nearly 50,000*t.* The first discovery of copper in this latter mine was laid open at a depth of about 15 fms. The sett has been carefully inspected and reported upon by Capt. S. Harris, Isaac Richards, John Daw, James Juleff, and Edwin Hosking, all of whom concur in the opinion that it will prove a good and profitable mine. An agreement has been entered into with the vendor, under which the company acquire the agreements for the leases of the property for a term of 21 years, together with all the plant and working gear, for the moderate sum of 500*t.*, one-half of which is to be paid in cash, and the balance in 1000 shares, upon which 5*s.* per share will be credited as paid. The whole held at a minimum rent, to merge into the royalty, of 1-18th on all the tin and copper raised.

Some valuable reports appear in our columns to-day, concerning HOLMBUSH AND KELLY BRAY UNITED MINE. There is also a communication from a correspondent, setting forth its merits, and the benefit of such discoveries in the present state of the metal markets and the mining interest. It is indisputable, from the reports of the several captains and miners who have inspected the mine or worked in it, that the company are in possession of a prize which will enrich themselves, give employment to numbers of working miners, and contribute to the general advantage of the country. Early this month the 70-inch engine will be set to work, when the drainage will rapidly proceed, and the great wealth of the mine be laid open.

The great advance in the price of tin has stimulated enterprise, and we are obviously on the very eve of a period of renewed activity in Cornwall, such as has not been seen for very many years. Among other indications of this, our attention has been directed to the formation of a new company for working a tin mine at SOUTH POLBERROW, in the parish of St. Ann's, Cornwall. That parish, and the district about it, are very remarkable, as pregnant with tin of excellent quality. Indeed, the vicinity has won the reputation of being one of the best districts for tin mining in the whole of the rich county of Cornwall. It is only necessary to mention the well-known names of the Great Wheal Charlotte, Polbreen, Wheal Friendly, Wheal Trevennance, Polberrow, Wheal Kitty, yet these are the near neighbours of South Polberrow; Polbreen bounds it on the east, Great Wheal Charlotte on the west, and the other mines lie close to it on the north, whence several good mines besides stretch away in the district. It is scarcely possible to find a mine more admirably situated; it is traversed by the productive lodes of Polbreen and Wheal Kitty, the latter of which pays regular dividends. It lies parallel with the richly yielding mine of Polberrow. A very fine cross-course is in immediate proximity to that part which is about to be opened up, which can be made to subserve the purposes of cross-cutting to the several lodes. In the sett there are 13 well-defined lodes, which have already exceeded productivity. A shaft has been sunk for 40 fathoms, communicating with an adit driven on one of the lodes; this has been extended 50 fathoms into the sett from the eastern boundary. The value of this mine is not a matter of speculation, or even of scientific theory and conjecture, the workings in the grant have already opened up good courses of metal, similar to that of the mines on its boundaries. It requires only a small outlay to make this one of the best dividend tin mines on the south-west. The prospects issued shows that the company will have the advantage of intelligent and energetic directors, and will begin under auspices most propitious. A number of eminent practical miners, and men amongst the best judges of mineralogical subjects in Cornwall, have borne an unqualified testimony to this mine as a most secure and profitable investment. Amongst them we may mention Mr. W. Paul, late of Tincroft; Mr. J. Nancarrow, late manager of St. Ives

Consols; Mr. J. Evans, late manager of North Jane; and Mr. J. Chase, of Porth Towan, St. Agnes. The capital of the company is to consist of 4000 shares of 2*s.* each. To be paid by deposit of 10*s.* on application, the same on allotment, and the remainder, if required, by instalments of 5*s.* per share, at intervals of not less than three months. We wish this undertaking all the success which its prospects not only promise, but seem to insure.

At Redruth Ticketing, on Thursday, 1606 tons of ore were sold, realising 8470*t.* 13*s.* The particulars of the sale were:—Average standard, 98*s.* 1*s.*; average produce, 8*s.*; average price per ton, 5*s.* 6*d.*; quantity of fine copper, 131 tons 8 ewts. The following are the particulars of the sales during the past month:—

Date.	Tons.	Standard.	Produce.	Per ton.	Ore copper.
March 25.	1911	... £98 5 0	... 8 <i>s.</i> 4 <i>d.</i>	£65 0 0	13 <i>s.</i> 0
April 1	2083	106 1 0	6 <i>s.</i> 6 <i>d.</i>	62 11 0	12 5
" 8	1384	108 18 0	5 <i>s.</i> 6 <i>d.</i>	62 9 6	12 6
" 22	2326	109 3 0	4 <i>s.</i> 2 0	62 9 6	13 1
" 29	1606	98 1 0	3 <i>s.</i> 5 6	64 9 6	12 11

Compared with last week's sale, the decline has been in the standard 2*s.*, and in the price per ton of ore about 3*s.* 3*d.* Compared with the corresponding sale of last month, the decline has been in the standard 7*s.*, and in the price per ton of ore about 6*d.*

At North Pool Mine half-yearly meeting, on Wednesday (the Rev. R. Crofts in the chair), the accounts showed a balance against the adventurers of 831*t.* A call of 5*s.* per share was made, and the agent's report, which will be found in another column, was considered very satisfactory.

At New Wheal Seton meeting, on Tuesday, the accounts to February showed a debit balance of 339*t.* 4*s.* A call of 5*s.* per share was made, and the report of the manager, which will be found in another column, was considered very satisfactory.

At Pendene Consols Mine meeting, on Tuesday (Mr. W. Coombs in the chair), the accounts for the three months ending March showed a loss of 620*t.* 8*s.* 4*d.* The general balance-sheet showed a debit of 55*t.* 19*s.* 7*d.*, including the estimated cost for April. A call of 6*s.* per share was made. The report stated that during the past week the lode in the engine-shaft had improved, being at present worth 8*s.* per fm. The men have 1 fm. to sink to complete the contract, which they believed would show a still further improvement. The committee of management were re-elected.

At West Wheal Kitty meeting, on April 21, the accounts for the six months ending February showed a debit balance of 385*t.* 10*s.* 11*d.* A call of 3*s.* per share was made. Capt. Joseph Vivian reported upon the various points of operation.

At Colquite and Callington United Mines meeting, on April 22 (Mr. J. Morkill in the chair), the accounts for the five months ending February showed a debit balance of 31*t.* 15*s.* 6*d.*, and a balance of liabilities over assets of 331*t.* 7*s.* 6*d.* A call of 4*s.* per share was made, and the committee were authorised to overdraw the banking account to the extent of 30*t.* Capt. T. Odgers reported that there is every indication from the lode at the shaft, and also the counter lode, that they will soon become productive for lead.

At the Copiapo Mining Company half-yearly meeting (Mr. J. Dunington Fletcher in the chair), a dividend of 4*s.* per share was declared.

At the Anglo-Argentine Company meeting, on Thursday (Mr. H. Haymen in the chair), the report of the directors and accounts were received and adopted. Details in another column.

The dividend for 1868 on shares in the Carmaux Mines Company having been fixed at 2*s.* per share, of which 10*s.* was paid "on account" in November, the balance of 15*s.*, less 2*s.*, the French tax, is payable from May 1.

COAL MARKET.—The fresh arrivals this week amounted to 117 ships. The demand for house coals has ruled dull throughout, and prices quote a reduction of 6*d.* per ton. Hartley's steady, at previous value. Hetton Wallsend, 18*s.*; Haswell Wallsend, 17*s.* 6*d.*; Lambton Wallsend, 17*s.* 6*d.*; Hetton Lyons Wallsend, 14*s.* 3*d.*; Tunstall Wallsend, 14*s.* 3*d.*—Unsold, 21 cargoes: 5 ships at sea.

The Bank of England return for the week ending on Wednesday evening showed in the ISSUE DEPARTMENT a decrease in the "notes issued" of 59,505*t.*, which is represented by a corresponding decrease in the "coin and bullion," on the other side of the account. In the BANKING DEPARTMENT there is shown a decrease in the "other deposits" of 691,077*t.*, and in the "seven day and other bills" of 21,396*t.* together, 712,434*t.*; an increase in the "public deposits" of 13,559*t.*; and in the "rest" of 7624*t.* together, 21,183*t.*—691,310*t.* On the other side of the account there is a decrease in the "public securities" of 500,000*t.*; and in the "other securities" of 286,913*t.*—786,913*t.*; and, deducting therefrom 691,310*t.* as above, there remains a total increase in the reserve of 95,603*t.*

Mr. Henry Dever (Deloitte, Dever, and Hollobone) has been appointed official liquidator of the Aberdare Merthyr Steam Coal Co. (Limited).

A GENTLEMAN, who has had twelve years' experience in the Working of Lead and Coal Mines, DESIRES AN APPOINTMENT AS MINERAL AGENT, OR AS MANAGER OR UNDER-MANAGER OF MINES AT HOME OR ABROAD. Highest testimonials as to character and ability. Address, "M. E.," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

A GENTLEMAN, who has had considerable experience in the MANAGEMENT OF IRON WORKS AND STEAM COAL COLLIERIES, IS OPEN TO AN ENGAGEMENT. Apply to "B. J." MINING JOURNAL Office, 26, Fleet street, London.

WANTED, at a COLLIERY in LANCASHIRE, a COLLIERY MANAGER. A liberal salary will be paid to a thoroughly competent person. Apply by letter, stating age, experience, and salary expected, to "G.," Post Office, Liverpool.

WANTED, at an EXTENSIVE COLLIERY in LANCASHIRE, a man competent to TAKE THE ENTIRE CHARGE of the UNDER-GROUND WORKS and STAFF employed therein. Apply to Mr. J. P. HIGSON, St. George's Chambers, Albert-square, Manchester.

WANTED, by a GENTLEMAN with a moderate capital, a PARTNERSHIP in a MANUFACTURING or MINING BUSINESS. Must bear the strictest investigation. Apply, "S. E. D.," Mercury Office, Derby.

WANTED, a GENTLEMAN of MEANS as PARTNER, sleeping or active, the latter preferred, to ASSIST to COMPLETE THE DEVELOPMENT of sundry MINERAL PROPERTIES (at home) of rich promise and great prospective value.

The incoming partner, by sinking a given sum, would doubtless get 100 per cent. for his outlay (after the first year), with other collateral advantages.

Address, "Alpha," MINING JOURNAL Office, 26, Fleet-street, London.

#### ENGINE WANTED.

WANTED, for the CARN BREA MINES, a good secondhand WINDING ENGINE, of about 30 inches cylinder, with or without BOILER.—Offers to be addressed to the Committee of the Carn Brea Mines, near Redruth.

WANTED.—A SECOND-HAND 30 in. cylinder ROTARY STEAM ENGINE, complete, for pumping and drawing, with or without a CRUSHER.

Particulars, with price, and where to be seen, to be sent to Mr. WILLIAM H. BUMPUS, 44, Threadneedle-street, London, E.C.

#### TO CAPITALISTS.

THE ADVERTISER IS OPEN TO AN OFFER for a SLATE QUARRY, possessing extraordinary advantages in facilities for working, contiguous to railway, low royalty, long lease, and unmistakable proofs of a genuine slate rock, as seen in levels and present workings.

Want of funds to clear top rock, and to extend slate-making, is the sole reason of this advertisement appearing.

All further particulars can be obtained from "Quarryman," Post Office, Carnarvon.

#### MINING IN SWEDEN.

A ENGLISH MINING ENGINEER, acquainted with the Swedish language, mining laws, and customs of workpeople, &c., of the country, and now engaged in directing mining works in Sweden, OFFERS HIS SERVICES TO INSPECT and REPORT on MINES for intending speculators, or, if required, to DIRECT the TRIAL or PERMANENT WORKINGS.

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#### HEMATITE IRON ORE ROYALTY.

THE ADVERTISER has an AGREEMENT for a LEASE of about FOUR HUNDRED ACRES of LAND in the FURNESS DISTRICT, LANCASHIRE, and would like to meet with a GENTLEMAN who has CAPITAL to ASSIST him in OPENING UP the WORKINGS on mutual or advantageous terms. The prospects are exceedingly favourable. Principals only treated with.

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#### RHENISH PRUSSIA.

SEVERAL VALUABLE MINES FOR SALE,—LEAD, COPPER, BLENE, and IRON. The Mining Laws of Prussia give with the concession to work, an absolute right of property in the mine for ever, subject only to a royalty of 2 per cent.

Apply to Mr. YOUNGHUSBAND, 6*s.* Wilhelm Strasse, Bonn-on-the-Rhine.

FOR SALE, cheap, a 16-horse power PORTABLE STEAM ENGINE, new, and with all recent improvements, guaranteed.

FIRST-CLASS PORTABLES, 5 to 25-horse power, on advantageous terms. Prize Medals awarded—Hamburg, 1863; Paris, 1867, &c.

FOR SALE, EIGHT very superior SECONDHAND PORTABLE STEAM ENGINES, 5 to 10-horse power, by eminent makers, in excellent condition.

BARROWS AND STEWART, ENGINEERS, BANBURY.

LEAD.—In 1807 a large number of pieces of LEAD were found in a field, called "LEAD BILLS FIELD," on WOODSIDE FARM, KIRKCUDBRIGHTSHIRE, about three quarters of a mile from the navigable river Nith, one piece weighing over 14 lbs., and ever since, when the same field is ploughed, pieces of lead are still found. Several pieces have just been turned up this year. It is the opinion of many Mining Engineers, who have been on the field, that lead is to be found there, or therabouts. The ground has been opened in several places to allow inspection.

Any person desirous of inspecting can do so on application to Mr. PETER FITZSIMON, Kirkconnell House, Newabbey-by-Dumfries, and obtain a licence to work the same.

OPPORTUNITY TO FORM A MINING COMPANY IN THE SOUTH OF EUROPE.—AN ENGLISH ENGINEER abroad knows of LEAD MINES OF GREAT WORTH, which the present proprietor is ignorant of, and may be had CHEAP. AN INEXHAUSTIBLE QUANTITY OF ANTIMONY ORE in another district.

Apply to "W.," 156, Camberwell New-road, S.E.

#### LEAD MINES AS AN INVESTMENT.

On the 6th of May will be published, by Mr. J. H. MURCHISON, F.R.G.S., THE "LEAD MINES OF CARDIGANSHIRE AND MONTGOMERYSHIRE,"—districts comprising VAN, LYDFILL, LISBURN, EAST DARREN, SOUTH DARREN, and other important Mines. Price 6*s.* With a MAP, showing the position of the different Mines, arranged and drawn specially for this Pamphlet. Price 1*s.*

In the meantime, orders for early copies may be sent to Mr. MURCHISON, at his office, 8, Austin Friars, London; and information will also be given relative to Mines in the above districts to anyone wishing and applying for the same.

#### Royal School of Mines, Jermyn Street.

PROF. GUTHRIE will COMMENCE A COURSE of THIRTY-TWO LECTURES, on MAGNETISM, ELECTRICITY, SOUND, LIGHT, and HEAT,

## NOTICES TO CORRESPONDENTS.

**STEEL FROM THE BLAST FURNACE**—"A. E." (Cologne).—We know of no invention for a process of producing steel in a blast-furnace directly from the ore; there is certainly nothing of the kind in use in England. Such a process would, moreover, be practically worthless, as no reliance whatever could be placed upon the quality of the resulting metal. "A. E." should forward exact copy of the statement upon which he bases his enquiry.

**NICKELIFEROUS ORES**—"An Adventurer in Spain."—In further reply to this correspondent's enquiry, Messrs. A. Sparrow and Co., of Liverpool, desire their names added to the list of purchasers of the kind of ore mentioned.

**CENTRAL SNAILBEACH**.—Would it not have been more consistent of the secretary if instead of simple contradictions he had explained why he had sent out the objectionable propositions to the shareholders to alter the Articles of Association? I defy either him or the captain to reply to the questions asked, or in any way defend or reconcile the reports lately issued by Capt. J. Kitto. I have good reason to believe none of the reports are true; practical men are of opinion that hundreds of tons of ore could and ought to have been got long ago. Why has it not been brought to bank? Can this question be answered satisfactorily to practical miners? Does the reason culminate in the threatened winding-up, or in the illegal resolutions passed lately, or the present resolutions now in the shareholders' hands for the meeting on Tuesday; or are some of our officials aware of the value of our property, and do they wish to get it into their own hands? If not, perhaps they can give us some reason for the past few years' management. Mr. Edward Davy Chapel House, Wattlesborough, Salop, though a registered shareholder from the commencement of the company, and one of the original promoters, has never received any official reports since the present secretary was appointed. So much for "Simply Untrue's" reply last week. Is it capital or practical management we need to make our mine second to none in Shropshire?—A SHAREHOLDER.

"Investor."—We never recommend any one particular broker or mine adventure; and can only refer you to the prospects of the South Polberrow for the information sought. Beyond this we cannot go.

THE MINING JOURNAL,  
Railway and Commercial Gazette.

LONDON, MAY 1, 1869.

## GOVERNMENT INSPECTION OF MINES.

The introduction of Mr. BRUCE'S Bill to Consolidate and amend the Acts relating to the Regulation and Inspection of Mines will be availed of, both by masters and men, as an opportunity for re-opening the whole question of official mine inspection. From the manner in which the Bill has been received it would appear that the opinion exists that it is an entirely new measure under discussion, yet so far from this being the case, the amendments are by no means numerous, and their chief object is evidently to remove doubts which existed with regard to certain provisions of the Acts at present in force. As to the impracticability of strictly complying with the 15th clause, which prohibits the employment of more than 100 hands in any one panel or mine, except in the case of comparatively unopened mines, it is scarcely possible that two opinions can exist; but this has been foreseen and arranged for by the provision that "the currents of air returning from two or more districts or panels may be allowed to join at such place as the Secretary of State may, upon application being made, consider desirable for the purpose of allowing such currents to mix before coming within reach of the flame of a ventilating furnace or otherwise." With this qualification the clause is less objectionable than has been stated, although it may, nevertheless, require some verbal amendments before it is made law. The possibility of so large a number as 100 lives being sacrificed through a single accident is sufficiently dreadful to contemplate, without attempting to raise objection, on the ground of inconvenience, to a clause which seeks to prevent a still greater sacrifice. The number of mines in which upwards of 100 persons are employed at one time is not very large, yet it is only in the case of these that the new clause would give material inconvenience; and it would be an equal reflection upon the professional ability of our mining engineers and colliery viewers to suppose that they would be unable to devise a method which, in the case of mines at present employing more than 100 hands, would satisfy the Secretary of State that the greatest attainable safety other than the system of working in panels had been provided for; or that they would regard as an insuperable engineering difficulty the extension of workings (wherein less than 100 persons are at present employed), in such a manner as to comply with the Act. The objections raised to the introduction of the system of working in panels are certainly not greater than those which greeted the Double Shaft Bill, yet means were speedily found, as soon as that measure was enacted, not only to secure the additional safety demanded, but to do so without considerable expense or inconvenience, so that it may fairly be anticipated that the requirements of the 15th clause will be met with equal facility.

All new measures, and especially those of a remedial nature, are sure to meet with objection, and in the case of the Bill now under consideration there is the unpleasant circumstance that the masters object to inspection altogether, as interfering with their right to conduct their own business according to their own judgment. That colliery proprietors would intentionally sacrifice the lives of those in their employ is not for a moment supposed, but it is acknowledged that there are dangers connected with mining which place it in an exceptional position, and that overstrained efforts at economy, which might be made with impunity in other branches of industry, lead in mining undertakings to unnecessary accidents, resulting in numerous deaths; so that an amount of official supervision which in other trades would be unjustifiable in mining becomes an absolute necessity. But, even regarding the system of official supervision as inevitable, the conflicting views entertained by the masters and by the workmen as to the form which inspection should take led to Mines Regulations Bills being equally distasteful to both classes—the masters object to it generally, the workmen to its provisions in detail; but, judging from the nature of the objections, it is probable that the interests of each class have been very carefully considered. From a communication which appears in another column the objections raised by the workmen will be readily seen, and a careful consideration of these objections leads to the conclusion that by very few verbal amendments the wishes of the workmen will be, as far as possible, met.

The workmen's objections may be very briefly summed up. They complain of the extension of the Workshop Regulation Act to the surface works of collieries, because that Act has not worked well; but it is unquestionably just that, if the position of those employed about pit banks is to be altered at all (and it is the workmen themselves who have demanded the alteration), the change must be such as to place them on the same footing as other branches of the working classes. The argument that from the special dangers and difficulties of mining special legislation is necessary cannot be applied to anything outside the mine without lessening its force in its application to things within it. As to the objection that the check weighman clause makes it necessary that the check weighman shall be selected from "amongst the persons for the time being employed at such mine," the necessity of the provision may be questionable, but the intention is obvious; it prevents the employment of a man positively objectionable to the coalmaster. The very object of the clause precludes the possibility of giving the employer a voice in the appointment; yet the master should not be required to have a strange and objectionable person constantly watching him. The employment of a man by the master may be regarded as sufficient evidence that such man is not objectionable to him, and in the interest of the colliers it is certainly preferable that the check weighman should be acquainted with the customs and peculiarities of the pit than that he should be a total stranger.

By the new Bill, the Secretary of State is given the power to appoint additional Inspectors, but the workmen complain that he is not compelled so to appoint. Here, again, the cause of complaint is more apparent than real, and it is probable that the power to appoint will better suit the workmen's views than the order to appoint could have done; for it must be remembered that the order to appoint must have been accompanied with an order as to the number to be appointed, and the insertion of any fixed number would have prevented the exercise of that discretion which is absolutely necessary. The personal feeling of Mr. BRUCE in the matter is not like proposed, as a member of the Committee on Mines, to insert a clause

in the report, "That it is expedient from time to time to increase the number of Inspectors, so as to keep pace with the increase in the number and extent of collieries, and to enable them to perform their duties adequately;" and with some verbal modifications this clause was adopted, and embodied in the report. It will be admitted, both by masters and workmen, that the number of Inspectors necessary to be appointed under the Act depends almost entirely upon the manner in which the inspection is to be conducted. If the Government Inspectors of Mines are to have a controlling power in the mines, the number would have to be as large as that of the present colliery viewers, and the entire system of colliery management, would have to be changed; but if the Inspectors' powers are to be limited, as it is generally admitted they should be, to securing observance of the Act, it is probable that a very small increase in the present number would suffice—for this necessary increase there is ample provision in the Act. For the efficient working of the Act all that is necessary is that the workmen themselves shall assist in carrying it out. They are in the best possible position for observing infractions of the Act, and should be the first to bring those infractions to the knowledge of the Inspector for the district. In case of only the alleged existence of danger, it is the duty of the Inspector at once to investigate it; and although communications direct to the Inspector would at all times be regarded as confidential, the possibility of difficulty arising could readily be avoided by communicating through the miners' agent, where such course is considered preferable.

The two remaining points objected to by the workmen are the first general rule, and the clause relating to the timbering, so as to prevent accidents from falls of roof. It will be remembered that the present general rule provides that all travelling roads and working places shall be kept ventilated *under ordinary circumstances*, and these words have led to innumerable difficulties, owing to the almost impossibility of determining what *ordinary circumstances* are. In the new rule the words have been omitted, and in lieu of them a proviso has very properly been inserted, enabling the Court to dismiss any charge for acting in contravention of the rule, if satisfied that all reasonable precautions have been taken by the owner, agent, or person who is so charged. To this proviso the workmen object, yet it would obviously be unjust to make any pit officer responsible for accidents which may occur in spite of his most strenuous efforts to prevent them. With regard to the second clause, the object of which is to prevent deaths from falls of roof, it is admitted on behalf of the men, in the communication already alluded to, that accidents of this class should be attributed rather to the recklessness of the men in not setting the timber closely enough, than to the insufficiency of timber at their disposal. It is asserted by the workmen and is unquestionably true, that in most districts the masters find the timber, so that a clause compelling them to do so would affect but a small proportion of the colliery proprietors of the kingdom. But this argument, so far from proving that the clause is unnecessary, proves rather that it does not go sufficiently far. It is admitted that the workmen do not take care enough in setting their timber to protect their own lives, their whole efforts being concentrated upon getting down the largest possible quantity of coal during the time they are in the pit. Now, the sole remedy for this is the introduction of a system under which the setting of the timber forms no part of the coal hewer's duty; and as such a system is already in use in the northern counties, there can be no question as to its practicability.

Taken in its entirety, the Bill is undoubtedly good; it is not calculated to give any additional or unnecessary inconvenience to the masters, and for this reason will probably meet with no opposition from them; whilst it secures as much to the workmen as (considering that the interests of the employers of labour must not be altogether overlooked) they can reasonably expect. The introduction of a clause making the double-shift system compulsory is, perhaps, equally objected to by masters and workmen who are not fortunate enough to have had practical experience where it prevails; yet it is very probable that such a clause would be of equal advantage to both classes, and for this reason alone it is to be hoped that the question of its enactment will be well considered before the Bill becomes law.

## IMPROVEMENTS IN IRON MANUFACTURE.

There is no part of our duty which affords us greater pleasure than the recording of the efforts of the long-established iron-making districts of this kingdom to hold their own against disadvantages, by reason of the competition of the newer districts. Whilst in the old localities the minerals most easy to get may be supposed to have been taken, in the new these have only begun to be tapped; and when, in addition to this, the modern rivals have the advantage of a seaboard, it is easy to understand that the competition is severe. That the Cleveland district is a serious competitor in prices with some other districts in this country, on account of its abundant mineral resources, we all know; and it is also beginning to be no secret that the energy which has been put forth by the men who are now utilising so successfully the natural products of the Cleveland hills is supplemented by that trade ability by which they are fast improving the quality of the metal which they send into the market. That district is, therefore, running the older ones very hard; but they are not disposed to yield the position so long occupied, without displaying somewhat of the manly vigour to which they owe their existence. We have from time to time drawn attention to that which is being done in this respect in what we have termed the old districts, and we have given our reasons for believing that they yet possess considerable vitality. Iron of the first quality is subjected to competition from newer districts, as well as that of the less valuable kind. Ulverstone, for instance, taking the place in this department occupied in the other by Cleveland. On all hands, therefore, there is a needs-be for economy in the districts of long date. And where there is not an immediate necessity for extreme carefulness because of the competition of other neighbourhoods, still ironmasters, who are worthy of the times in which they live, desire to avail themselves of every improvement which has the stamp of real worth, so as to economise the nation's resources, and at the same time improve the quality of their product.

An instance of this state of things is now to be seen in the old district of Shropshire, where cold-blast furnaces are still to be found. There the Old Park Iron Company have just applied to one of their cold-air furnaces the patent which has proved so successful in Prussia—*LURMAN'S Closed Hearth*. With the view of the method, which up to the present promises well in Shropshire, being adopted elsewhere in this kingdom, and thus one more step be taken by our ironmasters to meet the competition which—whether new or old districts—they experience from certain foreign countries, we describe the patent from personal observation. There is an opening from the hearth generally from 2 ft. 6 in. to 3 ft. 6 in. in width, which is stopped at the outer end by the dam, at the lower part of which the tapping hole is placed, and over the top of which the scoria flows from the furnace. The bars, also, for working the furnace are inserted by the workmen over the dam. Now, in *LURMAN'S* patent this channel and dam are done away with, and the hearth is uniformly completed in a circular shape, with only one small hole in it at the bottom, through which from time to time the iron is tapped. Where in ordinary furnaces the dam is situated in the patent furnace a tuyere is inserted, and the scoria is allowed to run out of a small hole, about 1½ in. in diameter, left purposely on one side. The advantages of this system are that the hearth is kept much hotter than in the usual method, because there is no waste of heat to keep up the temperature in the useless channel between the hearth and the dam. The tuyeres, also, instead of blowing into the cinder, as they usually do in furnaces of the ordinary construction, are inserted at a level of about 9 in. above the scoria outlet, so that the materials to be smelted have the full power of the blast upon them with unabated force. There is said to be also great saving of fuel, and a large increase in the quantity of iron made per furnace, whilst the quality also is said to be improved.

There is, also, no occasion to take off the blast whilst casting, which would add in this district something like 40 minutes to the blowing duration of the blast-furnace day, and there is no waste of heat or fuel by the process of what is called "blowing through" after each cast. The alleged disadvantage is that in the event of the hearth showing any tendency to "grow up" under *LURMAN'S* system bars cannot be inserted to lift the growth. In reply to this it is stated that the heat in the hearth is so great that there is no tendency to grow up, everything being completely melted and run out, in proof of which

it was stated that in the Old Park Iron Company's furnace, owing to some little irregularity, about three weeks after it was blown-in there was a tendency to grow a little, but by a slight alteration of the tuyeres the obstruction was soon melted up, and the bottom is now quite clear again.

There was an impression that this patent might answer the purpose where, as in the North of England, cokes only of a very hard nature were used as fuel, and where not much "bar work" is required. The interest of the present experiment lies, so far as this district is concerned, in the fact that the system answers well with fuel of a description similar to that used here. The patent can be applied to any furnace now in operation in a period of about 15 hours, so that no expensive "stand" is required, and the cost is small. In the event of non-success it can be removed in less time than is necessary to fix it. It is stated to work even better with hot-blast than cold-blast furnaces.

## RAILWAY DEVELOPMENT, AND THE COAL TRADE.

The development of railway communication is a subject so intimately connected with the iron and coal trades and the commerce of the country generally that no apology is needed to our readers for our frequent allusion thereto. The staple trades have now such keen competition to contend with that every possible facility should be given merchants and makers, and where possible new outlets should be opened up for the extension of their manufactures. The United Kingdom is covered with a complete network of railway lines, and it is obvious that no town of any commercial importance, nor any port of even third-rate magnitude, but should be the termini of several lines of railway, anxious to secure the trade and commerce which the district is capable of sending along their route. The advantages which accrue from railway communication are always reciprocal. Not only is trade expanded, and commerce facilitated on the one hand, but the dividends of the railway shareholders are, to a very great extent, consequent upon the trade and traffic of the district through which it traverses. These principles are so generally recognised that it is almost supererogation on our part even to allude to them; but however generally recognised in theory these principles may, practically they are not always acted upon, and it would not be a very hard matter to refer to rich, almost maiden, mineral districts, which up to the present time have been to a great extent debarred from the advantages of proper railway development. We are not now going to enter upon the once-vexed question of the "battle of the gauges," that has long ago been settled—slowly, and most reluctantly, has the broad gauge been abandoned in favour of the narrow. The determination on the part of the Great Western board to lay down the narrow gauge over its entire system was the death blow to the broad gauge, and all practical and scientific men now admit that the narrow gauge is the system most capable of profitably working the mineral and heavy traffic of the kingdom. During the past week the Great Western Railway have opened another most important section of their narrow gauge system between London and Birmingham or Wolverhampton. Passengers between London and Shrewsbury to the north have now an uninterrupted run between Paddington and Birkenhead on the narrow gauge without any change whatever, an advantage the facilities of which can scarcely be overestimated.

The determination of the Great Western board to lay down the narrow gauge over the whole of their system was arrived at some few years since, and it was hailed with the utmost satisfaction by colliery proprietors, iron merchants, and others, as a practical response to their long and oft-repeated appeals. Some ten years ago there was considerable agitation throughout the whole of the South Wales district in favour of the narrow gauge. Public meetings were held in almost every town of importance, corporate and other bodies took up the matter, and a memorial (signed by about 300 of the principal iron merchants and colliery proprietors) presented to the directors, setting forth, in forcible language, many cogent reasons why the narrow-gauge system should be at once laid down. It was, in the opinion of the memorialists, the system suited to the district; the mineral traffic could not be properly carried on over the heavy gradients of the South Wales district without such system. The directors admitted the truth of the assertions of the memorialists, and promised redress; but, from that day to the present, not a step has been taken to carry out their determination; and although the great mineral district of South Wales has since made considerable commercial progress, it has done so in spite of many difficulties, and in the absence of that great desideratum—the narrow gauge. The traffic requirements of the district have thus been to a great extent ignored, and the trade, therefore, has not received that healthy stimulus and expansion which it had a right to expect, and which would most assuredly have taken place had it received those facilities which the narrow gauge, and the narrow gauge alone, can afford.

We have said that the advantages of railway communication are reciprocal—that whilst trade and commerce are promoted and expanded on the one hand, the dividends of the shareholders are considerably enhanced on the other. Many instances in support of our assertion could be cited, but probably one of the most striking is the Taff Vale Railway. This line, as everybody knows, is a narrow gauge, opening up the important steam coal district of Merthyr and Aberdare with the port of Cardiff. Comparatively speaking, it has no passenger traffic: it has to depend for its success almost entirely upon its mineral trade. A first-class passenger on the Taff Vale line is almost a novelty,—at least three-fourths of the passenger traffic is third-class; and yet there is no line in the whole kingdom paying better dividends—10 per cent, is about the average; no line is better managed, and no affairs, in the general acceptance of the term, more prosperous. This is entirely due to its coal traffic. At the other end of the county of Glamorgan we see another and more modern instance of the mutual advantages accruing from proper railway facilities. Some few years since a direct narrow gauge line was opened up between Aberdare and Merthyr and the port of Swansea. Previously there was a break of gauge at Neath, and heavy gradients rendered the transit of mineral exceedingly costly and exceedingly difficult. No sooner was the direct narrow gauge opened than the shipment of coal at Swansea quadrupled—the colliery proprietors of the Aberdare and Merthyr Valleys had two ports of shipment, and the trade consequently received a stimulus which it had not had for many years previously. The shipment of coal has gone on steadily increasing at the port of Swansea year after year, and there is no doubt but for the amalgamation of the Vale of Neath Railway with the Great Western system the former company would now be a second Taff Vale so far as good paying dividends are concerned.

We cite these instances to show that it is the policy of the Great Western Railway Company to at once give the important South Wales district the advantages of the narrow gauge over their entire system. The board should at once carry out its long-expressed determination. The traders of the district still await the long-desired boon. The colliery proprietors are no longer content with local ports of shipment—they are anxious for proper facilities to pour the "precious diamonds" into other markets; in a word, they are longing to be able to send the priceless steam coal of the Aberdare and Merthyr districts into the great metropolis and other great marts in the kingdom, without break of gauge, and at low freights. The Great Western is the legitimate line of the district—it was the pioneer of all railway enterprise in Wales. Hence, the traders have no other company to look to for proper facilities and the expansion of trade. The Great Western have thus the monopoly of the (comparatively speaking) exhaustless coal field of South Wales. They have here a rich mine of wealth for the shareholders, and which, if properly developed, cannot fail to have most material effect upon their future dividends. The South Wales mineral basin is unquestionably the "backbone" of strength of the Great Western system. At present the mineral traffic is carried on, as we have shown, under great disadvantages; it has only local ports for shipment; so great are the disadvantages, and so heavy the freight over the railway system, that colliery proprietors find it to their advantage to charter specially built steamers for the carriage of coal between the ports of Wales and the great emporium of London, and the delay and the breakage, and consequent loss of the precious minerals, are known only to those who have had practical experience therein. Steam coal at Merthyr and Aberdare was never at such a low price as at the present time, and, taken as a whole, the

collieries are now very far from being in full operation. We are credibly informed that steam coal can now be had at the pit's mouth in the Aberdare and Merthyr valleys at from 8s. to 10s. per ton. Why its selling price in London should be from 22s. to 28s. can only be explained from the want of adequate and cheap means of transit. The high estimation in which the coal of the South Wales basin is now held must secure for it increasing demand. The colliery proprietors are ready and anxious to meet that greater demand, and are quite prepared to incur the necessary outlay in still further extending mining operations. The spirit of commercial enterprise is not yet dead, even in Wales. The colliery proprietors, and ironmakers, and merchants generally, are ever ready to meet improved demand, and to respond to calls made by the opening up of fresh outlets for their products. They have long had to prosecute their commercial undertakings in spite of great difficulties—long have their appeals to the Great Western board for the narrow gauge been ignored.

We sincerely trust the urgent requirements of the colliery proprietors and iron merchants of the South Wales district will now be speedily recognised. We have shown that the Great Western have a rich field of commercial enterprise in the South Wales coal field, and that mineral traffic has a most material and healthy effect upon railway dividends. That such would be the effect upon the Great Western system if the narrow gauge were granted cannot admit of doubt. We hope, therefore, delay will no longer be permitted. The Great Western directors have admitted the claims of the colliery proprietors and traders—have long since promised the only redress, the narrow gauge. Once granted the advantage would be mutual: colliery operations would receive a healthy and much-needed stimulus—trade and commerce expanded; and, on the other hand, the dividends of the railway be sensibly augmented, and the denizens of the metropolis and other large districts considerably benefitted.

Since writing the above our remarks have received a confirmation which we could not possibly have anticipated. An important and influential meeting of shippers of the port of Swansea, and representatives of some of the largest colliery proprietors of the Merthyr and Aberdare Valleys, was held in the Guildhall, Swansea, on Wednesday last, for the purpose of considering the propriety of some better means being adopted for the shipment of coal in the port. The meeting was another practical protest against the manner in which the Great Western Company neglect their own best interests and that also of the colliery proprietors and shippers. During the discussion which ensued (so we are informed by our correspondent) it was shown that, although the narrow gauge trucks brought down the coal from Merthyr and Aberdare to the port of Swansea, yet, in consequence of the shipping drops being still upon the old broad gauge principle in the North Docks that important place of shipment was practically useless, and that long and vexatious delays, and costly demurrage of vessels, took place in consequence. The shippers urged that the railway company should be at once requested to lay down the narrow gauge to the North Docks, and to adopt some of the coal-drops to that principle of shipment. Many obstacles and difficulties were stated to also exist in the shipment of coal in the South Docks, and ultimately a committee was unanimously appointed to draw up a report embodying their grievances, and suggesting remedies. We mention this in confirmation of the remarks which we have made above—that the Great Western board do not encourage and promote that expansion of the coal trade of the district, and the trade generally of their route, which the colliery proprietors and traders have a right to expect at their hands. The matters referred to by the shippers of the port of Swansea could be remedied for a comparatively nominal amount—the laying down of the narrow gauge for a few yards, and the conversion of a few coal-drops into the narrow gauge principle. If the board are so regardless of the requirements of local ports of shipment, we can only suppose it is because such facts are not within the knowledge of the present board of management. They will, however, now be speedily made cognizant of the difficulties which lie in the way of the expansion of trade; and we have every faith that, once made acquainted therewith, the interests of the colliery proprietors on the one hand, and that of their own shareholders on the other, will no longer be so signally neglected.

#### COMPENSATION FOR ACCIDENTS IN COLLIERIES.

For some time past the Miners' Association have had under consideration the necessity for having an amendment in the present law with regard to compensation for accidents. In the recent decision in the House of Lords, in the case "WILSON v. MERRY and CUNINGHAME," it was decided that workmen could not claim compensation at the hands of employers for injuries received through the misconduct of their servants. With the view of altering the existing law, the following Bill has been drawn up on the subject, and will shortly be brought before Parliament. The clauses are:

1.—Whenever any workman or servant shall be injured by or in consequence of his master or employer neglecting to provide everything requisite to secure their safety when at their work, on premises necessary to such work, such workman or servant shall be entitled to claim and recover in a court of law damages for all such injuries; further, whenever any master or employer shall appoint, or sanction the appointment, of a person, or persons, to direct, order, and govern any workmen or servant in the performance of his or their work; and if through any neglect or wrong doing on the part of the person, or persons, so appointed to direct the carrying on of the operations, any workman or servant under his or their orders should be injured, such workman or servant shall be entitled to claim and recover in a court of law damages from the master or employer as if said neglect or wrong-doing had been on the part of the master or employer himself; and in every case where the power so to direct, order, and govern is proved to have been given to such person, or persons, the person, or persons, so empowered shall be held not to be a fellow-servant of the workman or servant so injured, but be held as being the representative, or representatives, of the master or employer—provided always that every such action shall be begun within twelve calendar months from the date of such injury, or injuries, received.

2.—Whenever the death of any workman or servant shall be caused by a wrongful act, neglect, or default, which, if death had not ensued, would have entitled such workman or servant to recover damages under this Act, then in every such case the person who would have been liable for an action for damages if death had not ensued shall be liable to an action for damages, according to the provisions of the said recited Act.

3.—That this Act shall extend to Scotland and Ireland.

**AMERICAN COAL AND IRON.**—The coal traffic of the Chicago and Alton Railroad continues to increase in importance. The rapid growth of this branch of traffic is seen in the fact that in 1865 it amounted to 6000 tons; in 1866, to 71,090 tons; in 1867, to 146,050 tons; and in 1868, to 166,986 tons. It appears that 51 per cent. of the whole amount of bituminous coal received by railway in Chicago in 1868 came over the Chicago and Alton Railroad. The progress of the coal traffic of the Chicago and Alton was rather less rapid in 1868 than in 1867, but this was attributable to some of the local mines not being worked for three months of last year, in consequence of the strikes which prevailed. New mines are now being opened contiguous to the line, while the old mines are again being worked, so that a large increase in the company's coal business is confidently expected during 1869. The Chicago and Alton Railroad Company laid down last year 481 tons of steel rails. The value of the production of ore and pig-iron in the Lake Superior district was \$3,992,413 in 1868, as compared with \$3,475,820 in 1867, \$1,400,960 in 1866, and \$1,590,430 in the year 1865.

**MINERS' SAFETY-LAMPS.**—Mr. L. DESENS, of Charing Cross, has specified the object of his invention, which is that should the lamp be clandestinely opened by a miner the light is immediately extinguished. This is effected in the following manner, and the system can readily be adapted to the ordinary and existing miners' lamps at a trifling cost:—In the centre of the gallery and platform bearing the wick-holder as at present in use Mr. Desens introduces a cylindrical tube (an opening being cut for its reception), round which a spiral spring is coiled. In the interior of this cylinder is the wick-holder, a small tube, having soldered or otherwise fixed at one side three small teeth, which gear with an endless screw turning on an axis in its centre; the shaft on which this is mounted revolves below in a small tube. The object of the teeth and screw is to serve a double purpose, that of raising and lowering the wick as desired, by means of a button which terminates the shaft of the screw, and also by unearthing the teeth from the screw at once allows the wick-holder to drop into the body of the lamp. This is effected as follows:—At the side of the gallery, and at a short distance from it, a detent, having a backward and forward motion by aid of a spring, is placed. This detent at its lower extremity bears a small horizontal shaft, which, when coming in contact with a piece of metal soldered on the side of the cylindrical tube bearing the wick-holder turns the cylinder round, and thus unearths the teeth of the wick-holder from the endless screw, and so freed, the wick and holder drop into the body of the lamp, and the light is im-

mediately extinguished. The upper end of the detent is acted on by a metal piece fixed on the frame bearing the glass of the lamp in such wise that, on screwing this part of the lamp on to the body, the detent gives way each time it comes in contact with it; but in unscrewing the lamp a contrary effect is produced, and the detent by means of the shaft at its extremity acts on the rib of metal fixed on the cylinder, and turning the latter the teeth of the wick-holder are unearthened from the endless screw, as already mentioned, and the wick and holder dropping into the lamp the light is at once extinguished, which occurs before the body of the lamp is separated from the upper part. In this system of construction, the platform closing completely the orifice or entrance to the body of the lamp, no dirt or grit from the coal can enter and impede the action of the mechanism, nor can any of the oil be spilled or escape, as no outlet is thus permitted. At the head of the cylindrical tube two ear-pieces are soldered, one on either side, for the purpose of turning the tube which reinstates the teeth of the wick-holder in the screw.

#### MINING, METALS, AND MINERALS—PATENT MATTERS.

BY MICHAEL HENRY,

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Mr. WILLIAM LEATHAM, of Hunslet-road, Leeds, has obtained a patent for apparatus for preventing accidents to steam-boilers, and for drawing off steam therefrom, or reducing the pressure of such steam; also in apparatus for drawing off water produced by the condensation of steam from pipes or vessels containing steam under pressure. In order to prevent accidents to steam-boilers, in consequence of the supply of water being insufficient, a chamber is placed on the top of the boiler, such chamber being connected with the interior of the boiler by two pipes. These pipes are of different lengths; one of them opens into the boiler at such a level that its mouth becomes uncovered as soon as there is too little water in the boiler, the other descends lower into the boiler. At the top of the chamber is an opening, closed by a valve attached to a float within the chamber. When there is a proper quantity of water in the boiler, so that both the connecting pipes dip into the water, the pressure of the steam forces water up the connecting pipes into the chamber, and fills it until the float is raised, so as to raise the valve to its seat, preventing any escape from the chamber. Directly, however, the water in the boiler sinks, so as to leave uncovered the mouth of one of the connecting pipes, steam rises up this pipe, whilst the longer pipe, acting as a siphon, displaces the water from the chamber, and the float, being no longer supported, falls, and so opens the valve. Immediately steam rushes through the opening, and is led by a pipe to a whistle, which it sounds. There is also a branch pipe, leading some of the escaping steam into the ash-pit, beneath the fire-bars of the furnace, so that should the sound of the whistle be neglected the steam rapidly extinguishes the fire.

Mr. WILLIAM THOMAS has specified a patent for an invention relating to the construction of circular saws or cutters, more especially applicable for cutting slate and stone. The object of this invention is to reduce the cost and facilitate the operation of cutting and shaping slate rock, or other similar hard material, hitherto chiefly effected by means of circular saws, the teeth of which have been cut out of a single circular plate of steel, of which the saw was made. In constructing circular saws according to this invention the patentee forms the saws of a number of triangularly or other suitably shaped segments, each segment forming a separate and independent tooth. These teeth or segments are retained or held between two circular discs or plates, in one of which a number of pins or dowels are securely fixed, two or more to each tooth; the pins projecting through the several teeth enter holes formed in the second disc, the two plates, with the segments between them forming a saw, are placed upon an ordinary saw spindle and screwed up firmly between washers.

Mr. JAMES HURROCK, of Glasgow, has also obtained a patent for metallic caps, and their application to bottles or other vessels. This invention relates to an improved metallic cap to be applied to bottles or other vessels for the purpose of sprinkling in small quantities the liquids or fluid contained therein. The lower part of the cap is formed of thin flexible metal, for the purpose of being fitted to the neck of the bottle or other vessel, the ordinary cork or stopper is dispensed with, and a small ring of cork or other suitable material is placed between the mouth of the bottle or vessel and the upper interior part of the cap, for the purpose of forming a secure joint at this point. At the centre of the upper part of this cap a projection is formed, over which is screwed a secondary removable cap. The projection is perforated with one or more holes, through which the liquid is sprinkled as required.

#### REPORT FROM MONMOUTH AND SOUTH WALES.

APRIL 29.—The Rail Trade in this district continues good, and there are several buyers willing to enter into large contracts if makers would accede slight advantages in price, but, as a rule, they evince no disposition to give way, and, as they have sufficient orders on their books to keep their mills tolerably well employed for several weeks to come, they feel disposed to wait the advent of better prices, which they confidently believe will be obtained before long. Large quantities of rails continue to be sent to the United States, and some fresh engagements have just been secured on American account, chiefly railway material. The Russian season is now fairly opened, and shipments are being rapidly made, several vessels and steamers having left the local ports during the week, with rails for the Muscovite empire. Should no scarcity of tonnage arise the exports to Russia will be something considerable, one shipbroker alone having entered into a contract to send 50,000 tons of rails to Cronstadt before the close of the season. Recent advices from Melbourne are more encouraging than for many months past, and there is a fair prospect of transactions with Australia increasing. Enquiries from India are on the increase, and the Secretary of State for India is now advertising for iron for that part of the British empire. The home trade is steadier, among the buyers in the market being the Lancashire and Yorkshire Railway Company, but it is evident that purchasers are withholding orders till the last moment, for the purpose of delaying the advance in prices, which is now looked upon as almost an accomplished fact. It was currently reported in the beginning of the week that at one of the iron works in the district a rise of wages was about to take place, but the announcement was premature, there being no truth whatever in the rumour. It is highly probable that if the expected improvement takes place in the trade the men will ultimately obtain an advance, but until makers have more remunerative prices it is impossible for them to pay higher wages than at present, and the circulation of such reports is highly injurious, as it creates among the workmen a hope which at present must necessarily be doomed to disappointment. Tin-plate makers have numerous orders on their books, chiefly coke qualities, for the New York market.

The Steam Coal Trade is still characterised with a degree of quietness anything but satisfactory, although there is a little more activity evinced in shipments than there was a week ago. There are more enquiries from the mail packet stations, and about the usual quantities are being sent to French ports. There is a slight improvement in the demand from some of the Mediterranean ports, but to the other foreign markets the clearances are below the average. The output at several of the collieries has been reduced, and in some instances the hands are not working more than two or three turns a week. The demand from the West of England and Irish houses for house coals has somewhat fallen off, and there is a decrease in local consumption.

Charles Samuel has been summoned before the Tredegar magistrates for infringing the Factory Act, by employing a boy under 12 years of age as a door-lifter at the Victoria Works. Mr. Fitton, sub-inspector for the district, said the boy was at work at half-past eight at night, contrary to the law as set forth in the 41st section of 7th Victoria, which was an Act to regulate the age and hours of employment of young persons. No blame was attached to the managers in this instance, the man who employed the boy being alone responsible. The defendant was fined 10s. and the costs.

A number of lads employed in the works at Ebbw Vale have been examined by the Government official, and those under 12 years of age stopped from doing any more work, although many of them are fatherless, and have no one to support them.

Some alarm has been caused among the tin-plate workers in the neighbourhood of Swansea by the recent difficulties of Messrs. Hallam and Madge, tin-plate manufacturers, Morriston, Swansea; and the introduction of the new patents, by which the plates are tinned with considerably less labour than by the old process. It is said that several of the oldest and best hands are looking out for other engagements, and not a few contemplate emigrating in search of more remunerative and permanent employ. On the other hand, recent circumstances will, no doubt, tend to check further competition in the trade by the establishment of new works, which have so rapidly multiplied in number during the last few years.

It is somewhat surprising, after the fearful explosions which have occurred in some of the collieries in this district, that men are repeatedly found

utterly regardless of their own safety and that of their fellow-workmen. Two men have this week been summoned before the Pontypool magistrates—John Kinsey, for leaving open a door in a pit, at Abersychan, and George Cooke, for knowing the same, and not giving information to the overman. Mr. J. Green, mineral agent, stated that had the door been left open a little longer it would have caused an accumulation of gas, which would have killed the men themselves and the others engaged in that part of the pit. The Chairman said that the penalty seemed quite inadequate, and it was difficult to understand how men could persist in imperilling the lives of themselves and others by such gross negligence. They were each fined 40s.

Colliery proprietors and managers are just now keenly discussing amongst themselves the cost of transport of coal underground. The greater portion of this is at present performed by horses, and consequently, very expensive. Hauling by machinery has been long practised underground, on land, and tolerably direct leads, but what is now desired is to do almost the entire hauling by means of machinery. Mr. Llewellyn, the manager of the Abercarn Collieries, is taking the lead upon this question in Monmouthshire, and intends by the aid of machinery, now nearly completed, to do away with about 16 horses immediately, and to prosecute a lot of new openings without the aid of the additional horses which would be required for that purpose were the new machinery not put down. The machinery now referred to is an arrangement of the tail-rope and endless chain system, driven by a tail-rope, which has been working on a 1200 yards engine-plane during the last two years. No such a combination in hauling as this is at present known in coal mining. The connection between the old tail-rope and the new machinery is made by means of one of Fowler's Patent Clip Pulleys, which, as well as being useful for steam-ploughing purposes, are now being adopted for hauling purposes generally. By means of the clip pulley on a vertical shaft and some level gearing, and a pair of drums securely fixed overhead, a new tail-rope is worked through a cross-heading at present 400 yards long, and which is to be extended in the same direction for a distance of nearly a mile. The clip pulley shaft will also work an endless chain for hauling through the engine-plane, which has been driven forward 200 yards since the first tail-rope was put down, and which is yet to be driven forward a very long distance. A preliminary trial has been made, and everything worked satisfactorily. When all is completed it is intended to work 15 full trams out of the cross-heading with the drums, and 15 out of the new piece of the engine-plane by means of the endless chain, while 30 full trams are going up the old engine-plane at the same time. The pair of hauling engines at the head of the plane are fully equal to this task, and will easily bring up 600 to 800 tons of coal per day from this side of the pit alone. The erection of the new machinery has been a difficult task, from the constant horse traffic passing by, and the whole has been carried out under the supervision of Mr. Bailey, the engineer.

An improved safety-lamp has been invented by Mr. THOS. GRAY, of Taibach, Glamorganshire. It is a glass-sided lamp, and the peculiarity is that rods forming the frame are made hollow, in order that the air for supporting the flame may be taken in at the top of the lamp. The air having passed down these columns, is admitted through wire gauze to the interior of the lamp. The lamp will not burn in an explosive mixture, and is useful for discovering gas in the roof.

#### THE NORTH OF ENGLAND IRON AND COAL TRADES.

MIDDLESBROUGH, APRIL 28.—It is satisfactory to note that the Iron Trade in the Cleveland district continues to be characterised by a cheerful tone, and at the iron market yesterday there was a fair amount of business done. Makers of pig-iron have on their books a sufficient number of orders to keep them in full employ for some time to come; and, although prices have not hitherto advanced in anything like an equal proportion to the activity of this and other departments, prospects are so far hopeful that manufacturers are disposed to book fresh orders, except at advanced rates. The list quotations were—for No. 1, 48s. 6d.; No. 3, 45s. 6d.; No. 4, 44s. 6d. Forge iron is in good request. The shipbuilding yards on the Tees are well off for orders, and at Middlesbrough Messrs. Buckhouse and Dixon have just contracted for the building of two vessels of 1000 tons burden each, besides having a number of other large vessels on the stocks. The natural result of this is increased activity in the plate-mills, which, as well as the rail-mills, are kept steadily at work, although makers still have reason to complain of the lowness of the prices obtained. The foundries have been much brisker of late, and engine and boiler works have likewise shown a more exhilarating tone. Shipments of large quantities of rails for the colonies and for Russian railways have recently been made. Bar-iron makers do not report any improvement in that department.

It may safely be assumed that the question of an increase of puddlers and millmen's wages, now pending, has to a considerable extent interfered with the booking of orders in cases where the labour cost of production is uncertain; and manufacturers and workmen alike are looking forward with some anxiety to the settlement of this important matter. Mr. Rupert Kettle, the arbitrator, will, after taking evidence on behalf of the respective sides, announce his conclusions respecting which, of course, nothing has as yet been made known.

At several large and important meetings recently held in Middlesbrough the subject of the representation of the town and trade of Middlesbrough at the Tees Conservancy Board has been agitated by Mr. Williams (the manager for Bolckow, Vaughan, and Co.), with the view of equalising and modifying the dues charged on shipping in the river. It is a notorious fact that shippers are charged id. per ton more on coal shipped at Middlesbrough than at Hartlepool, or any adjacent port, besides which the dock accommodation has until now been so limited and imperfect that no vessel of large tonnage could safely enter the Tees to take in a cargo. Hence, the shipping trade has gradually languished at Middlesbrough, until at the present time the export coal trade, which ought to be one of the chief sources of revenue, has almost disappeared. For this result the Tees Conservancy Commission have been held in a great measure responsible, but it does not appear to us as if they were quite to blame. The interest on the large expenditure incurred by the Commissioners in deepening and improving the river cannot be met in any other way than by a tax upon the shipping; and yet it would surely be a most suicidal policy to impose such dues upon shippers as to frighten them from the port, and cause them to go elsewhere, as it would appear has already been accomplished. The question is one of considerable difficulty, and can only be met by a careful and exhaustive consideration of its merits by those more intimately associated with the trade of the port. To remedy any evils, such as are believed to be in existence, the appointment of additional and effective representatives of Middlesbrough at the board of the Tees Commission must go a good way, and for this reason it is hoped Mr. Williams' practical recommendations will be adopted.

The Coal Trade continues to show an improvement, and in consequence of the increased briskness of the mills and furnaces there is a large and steady local consumption. Most of the colliers get a good week's work turned out. There is little change otherwise to report.

Our Gateshead Correspondent writes—"I am afraid that there is some danger of the Walsend scheme for lifting the water failing yet. Some differences have occurred among the adventurers, and the sinking of the new shaft has been suspended."

#### REPORT FROM DERBYSHIRE AND YORKSHIRE.

APRIL 29.—There is no improvement to be noticed with regard to the staple trades of the northern part of Derbyshire, which are still very quiet, without much prospect of a change for the better. The iron works are only kept moderately going. A fair trade continues to be done in House Coal to the metropolis, and, for the season, the tonnage going from Clay Cross and other places is satisfactory. The advantages derived from what are known as free labour collieries, so far as the workmen are concerned, is being forcibly illustrated at Staveley and Clay Cross, where the men are, perhaps, better cared for than in any other mining district in the kingdom. In addition to the many valuable institutions at both places, fostered and supported by the employers, for improving the intellectual and moral condition of the workmen and their families, an effort is now being made to establish a school for technical education at those places. Few men have done more to promote the welfare of those under them than Mr. C. Markham and Mr. Binns, and we are glad to see those gentlemen now taking a leading part in the promotion of a scheme of technical education for the benefit of those who are under them. A few days since a conference on the subject took place at Chesterfield, when Mr. Buckmaster, of the Science and Art Department of the Committee of Council on Education, addressed the meeting, and stated that Government were prepared to give very considerable assistance in promoting instruction in those sciences which related to the industries of the neighbourhood. Mr. Markham, after some practical remarks, proposed "That this meeting, having heard Mr. Buckmaster's expla-

nation of the Government scheme of technical education, the whole of the gentlemen present form themselves into a committee, with power to add to their number, with a view of adopting the scheme in Chesterfield and the surrounding neighbourhood." In furtherance of the movement Mr. Markham and Mr. Binns gave an annual subscription of 10*l.* each for five years, which will go towards paying the stipend of a teacher. A branch railway from Staveley, and which will open out a comparatively new and extensive coal field, is about to be commenced, so that there will be another to the many mineral feeders which the Midland Railway possesses.

The colliers in several parts of South Yorkshire still continue out, and have commenced a series of outrages by breaking windows, and other modes of intimidation. At Denaby Main, near Mexborough, the old hands have not been at all disheartened, notwithstanding the fact that several of their late companions have been sent to prison, and others committed to the Sessions. On the other hand, the non-Unionists at work at the colliery, who will now number nearly 200, are beginning to show that they have no fear of those who term themselves "white sheep," so that although skirmishes of a slight character take place now and then, a battle on a larger scale would not be very surprising. There is not the slightest appearance of Mr. Pope giving way, there being as many men at work as are required in the present state of trade. At Mr. Huntsman's, near Sheffield, an attempt is being made to start a free labour society, similar to that which was attended with such success at the Staveley Collieries rather more than two years ago. At the Chappleton Collieries there is no change, and the dispute appears as far from coming to a close as ever.

With regard to the general trade of the district, the iron works, it may be said, are now kept well going, with a large demand for rails, sheets, and angle-iron. The steel works are also busy, and the hands fully employed. The demand for house coal, although by no means good, in some instances is rather better than it has been. In steam coal there is more activity, and the exports would have been larger during the week to the North of Europe were it not that some of the vessels chartered have not made the ports so early as expected. In the neighbourhood of Normanton the trade is also quiet. Sinking operations, however, are being carried out in some new localities. At Featherstone the sinkings there of a colliery have reached a depth of 130 yards, but the expected Stanley seam has not been found. At St. John's Colliery, belonging to Messrs. Lock and Warrington, the main seam, it is expected, will be reached in about three weeks. In the neighbourhood of Pontefract, also, in addition to Glass Houghton, it is said that other works will shortly be commenced.

#### REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

APRIL 29.—The Iron Trade continues quiet, and people do not seem very sanguine as to any decided improvement within any short time. The demand for rails is inducing a few South Staffordshire houses to go into that department of the trade, which has long ceased to be carried on to any extent in this district. Whether they will be able to hold their ground with the opposition of the North of England, South Wales, and Scotland, experience alone can show. The Hardware Trades are quiet, but moderately steady. A few small failures have occurred in the district, but generally these are not such as to excite either surprise or fear of other concerns being involved.

A rival, as it can hardly avoid being considered, to the Institute of Mining Engineers, whose centre is at Dudley, has been established, under the title of "The South Midland Institute of Mining, Civil, and Mechanical Engineers." Mr. Henry Beckett, F.G.S., well known as a geological mining surveyor, has been appointed President, and Mr. Silas Bowley, F.G.S., Vice-President. Mr. James Cope is the honorary secretary. The inaugural address is to be delivered by the President, at the School of Art, Wolverhampton, on June 7. One of the features of the Institute is that chartermasters and their deputies, and engineers at collieries, and foremen at iron works, shall be admitted free to the meetings at which papers are read and discussions take place. The Institute starts under very respectable auspices.

The remarks in the *Mining Journal* on Saturday week, with reference to handing over the amount of the surplus Hartley Fund to the South Staffordshire Hospital have attracted the attention of the miners. At a meeting at Old Hill, on Tuesday, Mr. Breakwell, the miners' agent, called attention to the facts, and to the observations in the *Journal*, and the following resolution was adopted:—

"That this meeting having heard that there is a sum of money given by the Newcastle Executive Committee to this district, thinks it should be used for the purpose of relieving permanently disabled miners, and for the relief of their widows and children, instead of being given to the enlargement of the hospital at Wolverhampton, and to the proposed hospital at West Bromwich."

A resolution was then carried requesting Mr. J. P. Baker, the Government Inspector, to use his influence in obtaining the money for the purpose to which its original subscribers intended it.

At the same meeting the question of the adoption of the plan of insurance by the owners of collieries, propounded by the Imperial Union Assurance Company (Limited), was considered. Mr. Underwood, who represented the company, stated that—

"It was known that the thin-coal men paid so much per week to their masters, and received so much when they were injured. The company proposed that the masters should pay them that money, and in return the society guaranteed the men 6*s.* per week for a term of not longer than two years when they were hurt, and their widows 1*s.* should the accident terminate fatally. A boy would receive 2*s.* per week, and his friends 5*s.* at his death. Should a man be permanently disabled, the company were willing to advance him 30*l.* at once, so that he could enter a business."

The men, however, were disposed to regard the proposal with a scrutinising eye. The principal ground of objection was that at present the masters make considerable allowances in case of accidents, and it was feared that should the proposed plan be adopted they would feel themselves absolved from all further claim, and it was left for the men to consider the question. The value the men attached to the relief given in the case of accidents proved that masters by no means display that selfish, hard-hearted disposition for which *Punch* and other critics are disposed to give them credit.

A similar decision was come to at a meeting of miners held to-day at Gornal Wood, with reference to the surplus allowed to the South Staffordshire district for the Hartley Fund. The meeting also decided to defer any allusion as to the proposal for insurance against accidents in mines.

After the Abergele accident took place the railway companies took fright, and classed percussion caps as dangerous goods, requiring them to be branded specially. The result is not only that extra freight had to be paid for the railway transit, but shipowners also took fright; the inspectors of passenger ships refused to have caps on board, and they can only be sent abroad by sailing vessels, at a price which can never be paid so as to make the export profitable, and an important branch of manufacture was threatened with extinction. With a view to show how groundless is the alarm, the manufacturers in London and Birmingham requested the Chamber of Commerce of the latter town to arrange for experiments to demonstrate publicly that percussion caps could not be exploded in bulk, and that there was no extraordinary risk in storing or carrying them; and these took place on Wednesday. The railway companies and assurance companies were well represented, and every test was applied by the application of fire and by concussion, and it was proved in a manner which could leave no doubt that there is no danger whatever in the carrying of percussion caps. There were also experiments on cartridges, which proved that they were not at all liable to explosion from being placed in contact.

#### THE HARTLEY COLLIERY RELIEF FUND SURPLUS.

The coal and ironmasters in South Staffordshire and East Worcestershire, who are proposing to use the 2114*l.* 14*s.* 5*d.* which was voted to their district as their share of the 20,440*l.* surplus of the Hartley Colliery Accident Relief Fund, are evidently unaware of the precise objects to which the general committee in Newcastle, and the subscribers, intended it should be used. To this want of exact information we, imagine, we attributed the recommendation to which they have come—that it should be spent in the erection and maintenance of a colliery ward in the South Staffordshire Hospital, at Wolverhampton. We perceive that the colliers in the South Staffordshire district are holding meetings, and objecting to the money being used for hospital purposes; but we presume that there will be no necessity for the objection, after the local committee have before them documentary information which will leave no doubt that to use the money as they suggest would not be in unison with the intentions of the contributors.

Certain of those documents have been placed at our disposal. At a meeting of the general committee, in Newcastle, on March 25, 1863, Mr. I. L. Bell (then Mayor of Newcastle) presiding, the executive committee presented a report upon the best method of disposing of the surplus. The general committee accepted the report, and instructed the executive to carry it out, if it should meet with the approval of the subscribers. The recommendation was that the money should be divided among the 12 coal mining districts of England, Scotland, and Wales, the number of coal miners in each district being the basis of the division. From the different Government Inspectors in the several districts the requisite numerical returns were to be obtained; the chief magistrates of the principal boroughs and the Inspectors were to be informed of the intentions of the committee, and requested to organise influential committees in their respective districts, three responsible members to be nominated as trustees; and this done, the money to which the districts showed themselves to be entitled was to be handed over to the local committee, "to be applied to the relief of suffering occasioned

by colliery accidents, in the way which may appear to them most desirable." But, for the guidance of the local committees, the executive committee's report continues—"While thus leaving the sectional committees to be guided by circumstances in administering relief, this committee, impressed with the necessity of stimulating prudence and forethought amongst miners, would most earnestly recommend to the various local committees the desirability of encouraging, with the means thus placed at their disposal, the establishment of permanent relief funds in their respective localities, and of aiding those already in operation."

Very extended publicity was given to the report, and the views of subscribers solicited. Only ten subscribers disapproved this method of disposing of the surplus. The extent to which these had contributed to the Fund appears in the circumstance that the amount (one fourth of their gift) which was returned to them did not represent 7*q.* It was thus to be inferred that the executive and general committees, having correctly read the wishes of the subscribers, might proceed with their scheme of carrying them into effect. They did so. The chief magistrates would naturally expect that the Mines Inspectors, being paid Government officers, who were assumed to have the interests of the men especially in their keeping, would take the most prominent part in organising the requisite local committees. No doubt this proved to be the case generally. It was certainly so in the South Staffordshire and East Worcestershire district. Her Majesty's Inspector there, after calling the attention of the coal and ironmasters to the necessity for the organisation of the committee, obtained a list of names which the general committee approved. On Feb. 9, 1864, the Inspector received from the secretary to the general committee in Newcastle a letter to the effect that the treasurer (Mr. W. Woods) had that day remitted to the Wolverhampton and Staffordshire Banking Company, "to the credit of Messrs. Foster, Thorneycroft, and Smith (the trustees nominated by the local committee), or their order, the proportion of the surplus allotted to the South Staffordshire and East Worcestershire district."

In the hand named that sum has lain ever since. The Inspector has suggested plans by which it might be made, as the general committee wished, a nucleus for a Permanent Relief Fund, to which the 30,000 colliers in that district might contribute. The trade were unable to see that the scheme was practical, and nothing, therefore, came of the project. When the committee met a fortnight ago, to consult as to what should be done with the money, the Inspector—who had previously intimated that to spend it in hospital purposes would not coincide with the wishes of the subscribers—again suggested that it should be made the foundation on which to build up a Relief Fund. The committee, however, were still unable to see how the Inspector's scheme could be economically worked, and resolved to recommend that the monies should be appropriated to the physical relief of injured colliers through the Wolverhampton Hospital. We presume that the "recommendation" is to be made to the three trustees; but that does not clearly appear. It is understood that the subject is not definitely settled; but that is to be brought before a meeting of the coal and iron trade to be hereafter assembled. When that meeting comes off, we have little doubt that it will be determined by the committee, as well as by the general body of the trade who may meet, that it would be unwise to use the money for hospital purposes. The Inspector has received a letter from Mr. John Atkinson, the secretary of the general committee in Newcastle, in which he says that the proposed use of the money is "clearly at variance with the meaning and object of the allotment of the surplus fund." Many reasons might be urged to show that voting the money to a hospital in Wolverhampton would, in so far as such an institution is a benefit to colliers, be to the advantage of only a portion, and perhaps a small portion, of the 30,000 men to whom it was voted; but we prefer to regard the step which the committee has taken as pursued under a misapprehension of the intentions of the general committee, and of the contributors—a misapprehension which the documents we have sketched, and Mr. Atkinson's interpretation of them, will, we are sure, effectually remove.

#### REPORT FROM SCOTLAND.

APRIL 28.—It is possible—that there is no present life in our Pig-Iron market—that our Liverpool friends may send up prices a few pence per ton, by debt management, through their brokers here; but otherwise there is a likelihood that quotations may go down a little further. Prices have fluctuated little during the past eight days; and as there is a kind of stationariness in the market, steadied a little by the prolonged demand for Canada (which was rather later than usual in coming to hand, on account of the mails having been "sniped up" there for some time), prices may keep up, without the aid of any artificial stimulant, for some time longer. The shipments during the week were 15,195 tons, foreign and coastwise, against 17,100 tons in the corresponding week of last year. From Middlesborough the imports were only 595 tons, as contrasted with 1815 tons in the same week of 1868, which makes the deficiency to date on Middlesborough imports reach 13,095 tons. At Govan we observe that another furnace has been put in blast, which makes three in all there, and one out. Yesterday the market closed with sellers of pigs at 52*s.* 9*d.* cash, and 52*s.* 10*d.* a month, at which prices business was done. To-day, about 5000 tons were done at 52*s.* 6*d.* cash down and 10*d.* and 52*s.* 8*d.* and 52*s.* 7*d.* a month; closing dull, sellers 52*s.* 6*d.* ten days, and 52*s.* 7*d.* a month, buyers 1*d.* less. No. 1, g.m.b., 53*s.* 3*d.*; No. 3, 50*s.* 3*d.*; Coltness, 61*s.*; Gartsherrie, 59*s.* 6*d.*; Glengarnock, 55*s.*; Eglinton, 52*s.* 6*d.*; Kinnel, 51*s.* 9*d.*; Almond, 50*s.* 6*d.*—all No. 1 brands. Makers of manufactured iron are in want of orders, a number of the merchant mills, both here and in the Coatbridge district, having scarcely eight days' work to run; although the ship-plate works, and makers of heavy beam and angle-iron, are all fully employed forward. The makers of nail-rods are also supplied with orders, merchant iron being the only class not participating in the demand. The Markland Iron and Steel Company are making preparations for working a mill which has been idle for some years, it being about to be employed on extra beam and angle-iron, which will require the services of additional puddlers, &c. In no kind of manufactured iron is there any change in price. Successful experiments, we understand, have been made at the Motherwell Iron Works, with Siemens' patent gas apparatus, in the process of puddling. At a meeting of the Associated Engineers a highly-appreciated paper was read by Mr. John Samson, "On the Transverse Strength of Girder," pointing out the effects of different strains, and supplying formulae for calculating their strength, simplified from various published works.

There is no improvement in the enquiry for Coals, although the shipments show a larger aggregate for the week than they did in the corresponding week of last year, the figures being respectively 31,460 and 30,230 tons. Our quotations are from 5*s.* 9*d.* to 6*s.* 9*d.* per ton, f.o.b. at the harbour; burnt coal, 11*s.* 6*d.* per 24 cwt. These are the quoted prices, but in practice coal masters bargain for what they can get. In the Wishaw district the miners had solicited an advance of wages. At Motherwell a conference was held of miners' delegates from Glasgow, Larkhall, Hamilton, &c., who occupied the hall in which the "best means of agitating the country," by way of securing a Union to aid in bettering their wages. Another conference is to be held on the 25th proximo, when it is requested that all the "dissatisfied" will attend, and assist in "creating a bond of union; to protect the miners' interest. In the other mining districts the colliers are attending to the work they can get, which is in general somewhat restricted, their wages ranging from 2*s.* 9*d.* to 3*s.* per day. Of the launches on the Clyde this week we notice an iron sailing ship of 1450 tons, for G. H. Fletcher, Liverpool, and which is to form one of his East India traders; and a screw-steamer of 1256 tons, and 170-horse power, for the Mediterranean trade.

The Duke of Sutherland has visited the diggers on his grounds at Kildonan, and was the subject of an ovation. In return, his Grace ordered an ox and a cask of beer to be sent them from Dunrobin. On visiting the scene of the diggers' labours the Duke is reported to have watched with great interest the various operations connected with the process of gold finding, taking an active personal part in the washing out of several dishes, in one of which he was fortunate enough to find a pretty respectable nugget, weighing 1*d.* worth, which he said he would have made into a pin, as a memento of his first visit to the gold fields of Kildonan. Before leaving, the Duke was presented by Mr. Gilchrist with the gold collected by the diggers some time ago, as a mark of their appreciation of his Grace's kindness in allowing the gold fields to be worked so long without restrictions of any kind. Dr. Rutherford also presented the nugget of 2*oz.*grs., which was found in the Saligill burn. It is said that a gentleman connected with a London mining firm met the Duke on the ground, and made an offer which sounds almost fabulous for the whole right of working the gold fields. This of itself sounds rather "fabulous."

**DISCOVERY OF NATURAL GAS.**—Some workmen, while boring for water at Middleton Hall, Uphall, observed that gas escaped from the bore. They applied a light, and instantly the gas blazed up in a beautiful white light, and continued to burn with increasing force, until it was extinguished by the workmen in order to resume boring. After the men had finished their "shift," the gas had considerably increased in volume; it was again ignited, and a pail of cold water suspended over it, which was boiled in 30 minutes. The stratum from which gas evolves is well known to mineralogists as the marl which overlies the rich bituminous shales of this district. Judging from the extent of the source of supply and the richness of the gas, it might be profitably employed for oil-making, heating, and illuminating purposes.—*Scotsman.*

#### UNIVERSITY OF GLASGOW—SESSION 1868-9.

##### CLASS OF CIVIL ENGINEERING AND MECHANICS.—PRIZE LIST.

**WALKER PRIZES—FOR AN ORAL EXAMINATION.**—First, R. McHaffie Melliss, Jun., C.E., Glasgow; second, ALEXANDER MALCOLM, C.E., Balfour.

**FOR WRITTEN EXAMINATIONS.**—Division A, ALEXANDER MALCOLM, C.E.; B. RICHARD NIVEN, Glasgow; C. JAMES YOUNG, Balloch.

**FOR WRITTEN EXERCISES.**—Division A, R. McHaffie Melliss, C.E.; B. W. OVERLAND DUNBAR, Gaywood, King's Lynn; C. C. ROBERT W. MAXWELL MULLER, Glenard, Denny.

**CERTIFICATE OF PROFICIENCY IN ENGINEERING SCIENCE.**—ANTHONY S. BOWER, C.E., St. Neots, Hunts; WALTER DEED, C.E., Colchester; JAMES GALLOWAY, C.E., Paisley; JAMES GILLESPIE, Jun., C.E., Garnkirk; ALEXANDER MALCOLM, C.E., Balfour; ROBERT McHaffie Melliss, Jun., C.E., Glasgow; GEORGE D. NEILL, C.E., Greenock; JOHN RUSSELL, C.E., Glasgow.

**CANDIDATES WHO HAVE PASSED PART OF THE COURSE.**—Mathematics, Natural Philosophy, Geology, Civil Engineering and Mechanics, Drawing; JAMES SIMPSON, Glasgow.—Mathematics, Natural Philosophy, Chemistry, Geology; ARCHIBALD B. ALLAN, Crosshill; RICHARD NIVEN, Glasgow.—Mathematics, Natural Philosophy, Chemistry; HENRY DYER, Glasgow; ROBERT NAPIER, Glasgow.—Mathematics, Natural Philosophy, Geology; ROBERT STEVENSON, Inverness, Paisley.—Mathematics, Natural Philosophy; JOHN WOOD, W. OVERLAND DUNBAR, King's Lynn.—Geology, Civil Engineering, and Mechanics; THOS. ALEXANDER, Glasgow.—Geology; A. COOK; WILLIAM GRANT, Rothesay; R. W. M. MULLER, Denny; W. T. OLIVE.

**ON THE TEMPERATURE OF COAL MINES.**  
[Amended copy of a paper read before the Midland Scientific Society, at Nottingham, by Mr. ARNOLD LUFTON, of Chesterfield, Mining Engineer, F.G.S.]

In instituting the experiments, the result of which I propose to describe to the present meeting (and which extended over a period of a year and a half), I was actuated by a desire to ascertain the amount of truth in the often-repeated statements of practical men, that the temperature of deep mines that had been at work for some time did not exceed the temperature of shallower mines, and to reconcile, if possible, those statements with the generally accepted observations recorded by scientific men, which tended to prove a gradual increase in the earth's temperature in descending. Owing to the kindness of the engineer, I had the opportunity of ascertaining the temperature of two shafts as they were sunk; the method of observation was as follows:—A bore-hole was made in the centre of the shaft bottom, from 6 to 9 feet deep; a thermometer was let into the bore hole by means of a wire, then the top of the hole was tightly plugged with hemp and clay, in order to prevent, as far as possible, the circulation of water in the hole. The thermometer was allowed to remain in the hole for 24 hours at 60°. I then used maximum registering thermometers, some by Negretti and Zambra, and some by Mr. Davis of Derby. Owing to the presence of water in both the shafts, the value of these experiments is much diminished; and in one shaft, which attained a depth of 966 feet, the rise in temperature, as recorded by the thermometers, was only 1° for every 129 feet; in the other shaft, where there was less water, and which attained a depth of 966 feet, the rise in temperature was 1° in 73 feet. I next had a series of holes bored horizontally in the shaft sides, into each of which I put a thermometer; the holes were tightly plugged, to hinder the circulation of air in them. The temperature of these holes remained the same winter and summer, throughout great variations of temperature in the air of the shaft. In the dryer of the two shafts above named the rate of increase in temperature varied from 1° in 73 feet to 1° in 60 feet. I then repeated similar experiments to those last at the Hucknall Colliery, in Nottinghamshire, through the kindness of Mr. Fowler, the engineer, and found a regular increase in the temperature of the works of 1° in 60 ft.; the depth of the pit was 1250 ft. Also, by the kind permission of Mr. E. Hedley, the engineer, I took the temperature of the coal at the bottom of the Annesley Colliery; the temperature was 75°, and the depth 1425 feet, being an increase of 1° in 60 feet. By the kindness of Mr. Carrington I was enabled to make similar observations at the Kineton Park Colliery; here the pit is 1200 ft. deep, the temperature of the coal 71°, being an increase of 1° in 55 feet. The result of all my observations is that the permanent temperature of the earth at a depth of 60 ft. is 50°, and the regular rate of increase in temperature below that depth, 1° in 60 feet. Observations made by others in the North of England and South Wales seem to prove the temperature of the mines depend on the depth below the surface of the ground, irrespective of the depth below the sea-level.

The next question is, given the above rate of increase in the earth's temperature, at what depths will it be practicable to get coal? I, therefore, made some experiments to ascertain what effect ventilation would have in cooling the mines. At the Hucknall Colliery the temperature of the coal, when first the pit was sunk, was 70°; 10 months afterwards a hole was bored 2 feet deep into the side of a coal head, through which a current of air had passed, and the temperature of the coal was found to be 59°. At the Annesley Colliery the coal, when first cut, had a temperature of 73°, whilst a bore-hole in a head that had been driven six months had a temperature of 64°. At Kineton Park the coal, when first cut, had a temperature of 73°, and after three months' exposure to a current of cold air, the temperature of the coal in a hole 2 feet deep was 60°. Many other experiments at other collieries gave similar results. With a small sensitive thermometer I found the coal in heads that had been driven some time was, at a depth of only 6 inches from the surface, of the same temperature as the air circulating past. From the above experiments I came to the conclusion that the passages in a mine would give out the same number of units of heat under similar circumstances. I have calculated that a mine of sufficient extent to produce 1000 tons of coal per diem, in a seam of average thickness, would raise from 1,300,000 to 1,500,000

efficiency. The ease and safety with which it can be transported is another great advantage, as it can be mixed at the place where it is to be used by unskilled hands. The fluids of which the match is composed should be transported in separate flasks, as the quantity of each to be used can be determined after a little practice.

POWDER NO. VII. is composed of one part of chlorate of potash, and one part of charcoal (willow or pine), saturated with the liquid. This compound will explode with a terrible effect in from one-half hour to one hour.

POWDER NO. VIII., which consists of chlorate of potash, pulverised and saturated with the liquid, is self-igniting, and will explode in about half an hour. This compound forms an excellent match in war, where mines are to be exploded and cities destroyed, for it can be so timed that the explosion need not take place until the dislodged army is a great distance away, and powder magazines in the enemy's country may be exploded by a spy or other individual, with little danger of detection. Tissue paper wetted with it will soon take fire and be consumed even in the highest wind, where common matches would fail.

All the powders when compressed are of much greater strength than when loose. If either of the said powders when saturated with the liquid should take fire immediately after adding the liquid thereto, then it will only burn with less danger than loose gunpowder, the powder being of great strength after the liquid gets dry. The powder No. III. will explode by a slight tap with an iron or a wheel passing over it on a stone or iron roadway, but not until after it has been saturated with the fluid above described and thoroughly dried. This compound without the liquid will make good cartridges that will explode by percussion.

**NEW PRINCE OF WALES SLATE COMPANY.**—The prospectus of this undertaking is published in another column of this day's Journal. It is introduced not as a new and unproven quarry, but as a thoroughly established and first-class business. The quarry is considered throughout the Principality as the best, as it is also probably the largest, which has been opened in Wales within the last century. The slates are known everywhere, and for colour, purity, lightness, and strength cannot be surpassed. The supply of slabs as well as slates is inexhaustible. The machinery, plant, buildings—in fact, everything—is most complete. The directors represent some of the largest quarries in Wales: 5000 shares are appropriated, of which the directors and general manager hold 2000. Only 2000 shares are now offered to the public at par. The local manager vouches for a large and immediate profit. To understand the real value of this investment the prospectus should be read. The names and position of the directors are offered as a guarantee for every statement therein, and it is stated that such clear and decided advantages, without any apparent risk or uncertainty, were never before presented. Slate quarries are undoubtedly, when fully proved and established, as in this case, among the best and most enduring of British investments.

**LEAD MINING IN CARDIGANSHIRE.**—With reference to the amalgamation of the Cwm Darren and the Great Cwmsymlog Mines, Mr. T. P. Thomas writes—Some hubbub has existed during the last few months in connection with the Cwm Darren Silver-Lead Mine, Cardiganshire, in consequence of an important discovery made in the engine-shaft. Now, it is well known that the least discovery made upon lode in a good district may raise the value of shares vastly beyond their intrinsic value; for who can measure the correct value of that which must, to some extent, be matter of speculation, however certain it may be that a brilliant prospect has been opened? In this case the lode failed to realise its original productiveness for the present, although there is every reason not only to hope, but believe, that such productiveness will again be met with. Some 15 years since I was interested in this property, when, in consequence of discoveries made, shares ran up to a very high figure, even hundreds per cent. The lode was bony, and prices were sustained for some time. I then suggested that this mine should be practically connected with Cwmsymlog, or Old Darren, as the machinery of the latter could be made available for the development of both properties, so peculiarly situated was that machinery, and the two estates to one another; in fact, they cannot be worked with facility and moderate expenditure apart. These sets, when amalgamated, must prove one of the finest mineralised properties in Wales—for on the east is East Darren; on the north, Broughy; on the south, South Darren and Cwmsymlog; and on the west, the Old Darren; with other important mines contiguous—in fact, the whole vicinity geologically expresses the certain wealth of these mines. Under these circumstances, and hearing so much talk about these mines lately, it appeared to me appropriate to address to you a few lines on the subject.

#### MINING NOTABILIA.

[EXTRACTS FROM OUR CORRESPONDENCE.]

**MINING IN ST. AGNES DISTRICT.**—Mining capitalists are again turning their attention to this district, the rise in the price of the having placed almost every mine in the neighbourhood in a profitable position. Recently an influential London company has been formed to work that famous old tin mine BLUE HILLS, and success will, there is little doubt, result from the undertaking. Also a respectable party has it in contemplation to work vigorously a valuable piece of mineral ground near the St. Agnes Beacon, on the declivity of that ancient hill. From boy I have often heard old miners and mine agents speak about the Old Beacon Hill, and that the day would come when rich and prosperous mines would be laid open in and around the Beacon. This sett, which is called SOUTH POLBERROW, will bear investigation, and any parties visiting the locality can hear for themselves what the miners may say by way of recommending it as a most promising property. Some years since there was great excitement about a piece of ground near Great Wheal Town and Great Wheal Charlotte, worked under the management of the late Capt. Evans, it being their object to reach the masterly cross-course traversing this sett which made the rich deposits of ore in the latter-named mines. This property will again shortly be set to work by an influential party, now constituted under the heading of NEW WHEAL CHARLOTTE TIN AND COPPER MINING COMPANY, and the general opinion entertained is that similar results will follow as were realised in the adjoining mines.

**SOUTH MERLLYN.**—The 40 fm. level north is improving; this is important, and the agent anticipates making early valuable discoveries of lead, and of being able to work upon the ore gone down in the level above very soon.

**GREAT WHEAL VOR.**—During the last few days considerable improvements have taken place, more particularly about Edward's, or the western portion of the mine.

**MID-WALES.**—An important improvement has taken place in the end of the 12. The manager states that he has not seen a fleet looking lode for a long time. He adds that he certainly thinks the next level will show some good; the lode in the end is 8 or 9 ft. wide.

**NORTH POOL.**—This mine has greatly improved within the last month. It must be a source of some satisfaction to the shareholders to know that, after an expensive development, the discoveries now made are likely to change the mine from a calling to a dividend-paying state. This mine from a former working gave profits of £6,000,000, upon an outlay of about 4000£.

**SOUTH CROFTY.**—The pitch under the 130, set at 2s. 6d. in 12, remains productive, and some of the other pitches in the mine are reported to have improved.

**GWYNFYNYDD GOLD MINES (near Dolgelly).**—We noticed a few weeks back that experiments were in progress to test the value of the deserted gold mines in this district. We are now informed that the result has been satisfactory, and the lode stuff throughout yields rather more than 1 oz. per ton, and some picked stuff more than 40 ozs. per ton. By the novel, but simple, Australian patent in operation, all the arsenic, sulphur, blende, pyrites, and such like, are got rid of, and the gold alone remains behind. A fatal accident having befallen one of the miners, our correspondent was obliged to defer further particulars till next week.

**HOLMBUSH AND KELLY BRAY.**—The 70-in. engine at Holmbush is to be started on Thursday, and as it will drain a large extent of ground, the event is looked upon in the neighbourhood as a matter of importance. There is but one opinion in Cornwall as to the value of the discovery at Kelly Bray.

**Llywernog.**—An important discovery was on Saturday last made in the bottom level of this mine by means of a short cross-cut from the 62 fm. level. Owing to a valuable deposit of lead ore, worth 2 tons per fathom, first discovered in the 50, the ore has for some time past been sought for in the 62; but from the fact of the dip of two lodes forming a junction just below the 50 the lode was disturbed, and the level (62) extended west for a considerable length from the shaft, upon a lode which only yielded about 1/2 ton of lead ore per fathom. The rich deposit above was then followed down by means of a winze from the 50 towards the 62; and after a few fathoms had been sunk its direction proved that the ore would be south of the bottom drivage—hence a cross-cut was started south of the 62, and a drivage of 1 fm. has resulted in this discovery. It turns out that this level is upon a lode which was south of the shaft at the higher points of the mine; this lode has crossed the main one, and reformed with a strata of country between them of about 1 fm. in thickness. In fact, the two lodes appear to have changed their relative positions. The cross-cut to which we have referred has proved ore in the main lode of even greater value than in the 50 fm. level. In our usual columns is the report of the agent up to the latest hour on Thursday evening.

**CWM DWYFOR COPPER AND SILVER-LEAD MINES.**—The 12 fm. level is now rapidly approaching the Great Northern copper lode, and is being driven through a highly favourable clay-slate. Within the last ten days another fine copper lode has been driven through in this level; this lode is 2 feet 6 in. wide, and contains very rich yellow sulphuret of copper, accompanied of which has reached the company's office. There seems no doubt of cutting into a good deposit of copper in the great lode, as the old men worked away the ore in the opened part of the lode as far as they could get down without machinery, and the lode will be intersected at 12 fms. immediately below this point. The mine has recently been inspected by Captain Trovethan, of Aberystwith, and Captain Henry Northey, of Welsh Consols, Goginan, two eminent authorities on lead and copper mining. Capt. Northey has, probably, inspected numerous, both at home and abroad, and received higher testimonial, than any agent with whom we are acquainted. Capt. Trovethan was for many years agent of Great Consols, and long the trusted representative of the Messrs. Taylor; and in cases of difficulty in Cornwall his experience and judgment were sought and relied on.

**BRONFLOYD.**—Capt. T. Kemp (April 28) writes—The stope under the 62 has improved, and is worth 2 tons of lead ore per cubic fathom. The character of the lode in the 40 fathom level end west is improving, and I hope to see indications of ore soon. We shall sample 65 tons of ore on Saturday.

#### In Chancery.

KEATES V. LYONS.

SHARES IN THE CELEBRATED LISBURNE LEAD MINING COMPANY (LIMITED).

**M. R. MARSH** has been directed by the Registrar of the Court of Chancery of the County Palatine of Lancaster to SELL, BY AUCTION, at the Guildhall Coffee-house, Gresham-street, in the City of London, on Thursday next, May 6, at Twelve o'clock, in 20 lots, TWENTY SHARES of £18 15s. (fully paid up) in the celebrated

LISBURNE LEAD MINE COMPANY (LIMITED),

Situate in the county of CARDIGAN, 14 miles from the port of Aberystwith. The capital of the company is £7500, in 400 shares of £18 15s., now fully paid up. The profits for the last thirteen years have averaged £7650 per annum, or £19 2s. 6d. per share.

Particulars, with conditions of sale, may be obtained of Messrs. SIMPSON and NORTH, Solicitors, Liverpool; and at Mr. MARSH'S Auction, Land, and Surveying Offices, 54, Cannon-street, E.C.

#### MINING SHARES.

**M. R. BRANCH** WILL SELL, BY AUCTION, on Monday, the 10th day of May next, at Four for half-past Four o'clock in the afternoon precisely, at the Queen Railway Hotel, Chester, in such Lot or Lots as shall then be determined, pursuant to an Order of the Court of Chancery of the County Palatine of Lancaster, TWO HUNDRED AND THIRTY-EIGHT SHARES in the WELL-KNOWN and OLD-ESTABLISHED MINING COMPANY called

THE TALAROGH MINING COMPANY (LIMITED).

This company's mine is situate at Dyerth, near Rhyl.

The company is a very flourishing concern, and has for many years paid very large dividends.

For further particulars apply to the secretary of the company, Mr. WILLIAM SMITH, Dyerth, near Rhyl; to Messrs. PALGRAVE, REYNOLDS, and LYON, solicitors, 3, Lord-street, Liverpool; or to Messrs. SIMPSON and NORTH, solicitors, 1, Rumford-street, Liverpool.

#### CRIDDIS, NEAR PADSTOW.

PEREMPTORY and UNRESERVED SALE of TWO EXCELLENT STEAM ENGINES, with BOILERS, CRUSHER, CAPSTAN, &c., complete.

**JAMES CARTER AND SON** WILL SELL, BY AUCTION (without reserve), on Thursday, the 13th day of May, 1869, at Twelve o'clock at noon, at CRIDDIS, near PADSTOW, the following valuable

#### MACHINERY AND EFFECTS, viz.—

A first-class 40 in. cylinder steam PUMPING ENGINE, 9 ft. stroke.

An ENGINE BOILER, 10 tons, with outfit, complete.

CAPSTAN and CAPSTAN SHEARS.

An excellent 22 in. cylinder steam WINDING ENGINE, with CRUSHER and BOILER, about 5 tons.

Sundry smiths' and miners' tools, smiths' vice, screw taps and plates (various sizes), 9 bars of new cast steel, sundry bars of iron, bolts, staples, glands, &c., 2 iron train wagons, a large quantity of wood pipes, new planks, &c., &c.

The mine is situate within 50 fms. of a quay within the harbour of Padstow, where the machinery can be put on board a vessel at very little cost, and the principal highway leading to the Bodmin Road Station of the Cornwall Railway runs close past.

For further particulars, and to inspect, application may be made to Captain RICHARD RICH, Bodmin.

#### GLAMORGANSHIRE.

IMPORTANT COLLIERIES PROPERTIES, extending over FIVE HUNDRED AND THIRTEEN ACRES,

Held for a long unexpired term at low rents.

**M. FRANK LEWIS** WILL SELL, BY AUCTION, at the Mart, Tokenhouse Yard, London, on Friday, May 14, at Twelve for One o'clock, the very VALUABLE and IMPORTANT COLLIERIES, situated in the RHONDDA VALLEY, on the Taff Vale Railway, known as

#### PENTRE AND CHURCH COLLIERIES,

Only 21 miles from the PORT of CARDIFF, extending over an area of 513 acres, together with the PLANT, all in most perfect working order.

The proved seams of COAL are five in number, two of which only are being worked at present, and produce from TWO HUNDRED to THREE HUNDRED TONS PER DAY of the well-known SMOKELESS STEAM COAL (on the Government list), the whole being capable, it is estimated by eminent local engineers, of yielding an output of 800 to 1000 tons daily upon full development.

The coal is admitted to be one of the finest quality sent into the port of Cardiff, and is obtained at comparatively small cost, owing to the exceptionally small depths and total absence of water throughout the sets.

The exhausted area is very small indeed, the shafts upon the Pentre Mine (the only one sunk) having been completed but about two years since, the works upon both collieries previously being carried on by level.

Upon the estates are a foreman's residence, and the necessary buildings of forces, stabling, offices, &c.

Particulars and conditions of sale may be had of Messrs. PRICE, HOLYLAND, and WATERHOUSE, Public Accountants, No. 13, Gresham-street; of Messrs. LEWIS, MUNNS, NUNN, and LONGDEN, solicitors, No. 8, Old Jewry; and of Mr. FRANK LEWIS, Estate Agent, Surveyor, and Auctioneer, No. 32, Coleman-street, London, E.C.

#### GLAMORGANSHIRE.

IMPORTANT COLLIERIES PROPERTIES, extending over FOUR HUNDRED AND EIGHTY THREE ACRES, or thereabouts,

Held for long unexpired terms, at low rents and royalties.

**M. S. BENTLEY AND HILL** WILL SELL, BY AUCTION, at the Mart, Tokenhouse Yard, London, on Friday, May 14, at Twelve for One o'clock p.m., in One Lot, pursuant to instructions received from the Official Liquidators of The Royal (Forest of Dean) Mining Company, Limited, the very VALUABLE and IMPORTANT COLLIERIES, situated in the Parish of LLONG-HOR, on the Llanelli Railway, known as the

#### BISHWELL COLLIERIES,

Six miles west of SWANSEA, extending over an area of about 483 acres, together with the STEAM ENGINE, PLANT, MACHINERY, and MATERIALS, all in most perfect working order.

The proved seams of coal are five in number, two of which are being worked, and are both highly bituminous in quality. It is estimated that there are over THREE MILLION TONS of workable coal in one vein only.

The property is held under three leases for the respective terms of 20 years and 20 years, from Ladyday, 1865, and 23 years from the 1st of May, 1865, at the several annual dead rents of £133 6s. 8d., £20, and £100, with certain small royalties.

Printed particulars and conditions of sale may be had at the principal Inns in Swansea; of JOHN TUCKER, Esq., Solicitor, 20, St. Swithin's-lane, London; of the Official Liquidators, at their office, 3, Tything, Worcester; and of Messrs. BENTLEY and HILL, Auctioneers, Worcester and Pershore.

VALUABLE FREEHOLD MINERAL ESTATE of 50 acres 3 rods 16 perches, more or less, lying in a ring fence, with the SURFACE LANDS and MINERALS thereunder, known as

#### GRESLEY WOOD COLLIERIES,

with possession.

**M. S. FULLER, HORSEY, SON, AND CO.** are instructed by the Liquidator, with the consent of the Mortgagor, TO SELL, BY AUCTION, at the Mart, London, on Friday, May 21st, 1869, at Two o'clock precisely, in One Lot, a VALUABLE FREEHOLD MINERAL PROPERTY, known as

#### GRESLEY WOOD COLLIERIES,

With the SURFACE LANDS and MINERALS thereunder, together with the necessary PLANT and APPLIANCES for working the same.

The estate is freehold, and land tax redeemed, is situate between Burton and Abdy-de-la-Zouche, and has a frontage of 1690 ft. next the turnpike road. The situation possesses many advantages for building purposes, the land lies high slopes to the road, and commands extended views of diversified scenery. It is within five miles of Burton, and there is also an unlimited supply of brick earth on the estate. The surface comprises about 40 acres of woodland, with the growing timber thereon available for the colliery purposes, about 4 acres of pasture and garden land, and about 6 acres occupied by the colliery works.

The colliery, which is connected with the Swadlincote branch of the Midland Railway by a freehold siding and branch incline railway, has TWO brick and iron tubbed SHAFTS sunk to the Main Coal at a depth of about 198 yards, and there are PUMPING and WINDING ENGINES, PUMPS and GEARING, INCLINE ENGINE, GAS WORKS, BRICK WORKS, dwelling house for viewer, offices, stabling, &c.

The seam known as the Main Coal on the estate has all been worked, but a 12-foot roadway has been cut into the same seam on an adjoining maiden colliery, about 80 acres in extent, the minerals of which belong to the trustees to the Marquis of Hastings, and arrangements for the working of which may be made.

The unworked seams on the Gresley estate comprise about one half the area of the Little Coal, lying above the Main Coal, and the whole area of five seams under the Main Coal, known as the Woodfield, Stockings, Eureka, Anglessea, and Kilburn, the qualities of which are well known, the aggregate thickness being about 27 ft., and the whole of the seams, including the Main Coal, are in the adjoining field, into which a roadway has been cut.

Rates are arranged for the transit of minerals by rail. The bricks manufactured are of excellent quality, and the existing plant is equal to the make of about 30,000 per week.

The above will be first offered in One Lot, and if not sold the colliery and 48a. 2s. 2d. of freehold woodland will be offered without the railway.

Printed particulars, with plans, may be had of H. CHATERIS, Esq., Liquidator, Gresham-buildings, Basinghall-street, E.C.; of Messrs. ASHURST, MORRIS, and Co., solicitors, 6, Old Jewry; of Messrs. ST

**RAILWAY WAGON WORKS, BARNSLEY.**  
**M E S S R S. G. W. AND T. CRAIK**  
 ARE PREPARED TO  
**SUPPLY COAL AND COKE WAGONS**  
**OF EVERY DESCRIPTION,**  
 Either for cash, or by deferred payments through wagon-leasing companies.  
 WAGONS PROMPTLY REPAIRED.

**TANK LOCOMOTIVES,**  
 FOR SALE OR HIRE.  
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**THE BEVERLEY IRON AND WAGON COMPANY**  
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**MANUFACTURERS OF RAILWAY WAGONS, WHEELS,**  
 AXLES, LORRIES, CARTS, WOOD WHEELS, &c.,  
 IRONWORKS, BEVERLEY, YORKSHIRE.

**NOTICE.—THE BRITISH, COLONIAL, AND FOREIGN PATENT GOLD AND SILVER AMALGAMATING AND WASHING MACHINE COMPANY** inform the public interested in mining that, it having been RUMOURED that their PATENT AMALGAMATOR is an INFRINGEMENT of an EXISTING PATENT, and that an INJUNCTION has been SERVED upon them in consequence, the SAME being UTTERLY FALSE, they HEREBY GIVE NOTICE that they HAVE MADE, ARE MAKING, and WILL CONTINUE TO MAKE THEIR MACHINES, and PARTIES PROVED to CIRCULATE such UNFOUNDED RUMOURS will be PROCEEDED AGAINST WITH THE UTMOST RIGOUR OF THE LAW.

H. C. HOUSE, Secretary.

**IMPORTANT NOTICE.**

**TO GOLD AND SILVER MINING COMPANIES.**  
**THE BRITISH, COLONIAL, AND FOREIGN PATENT GOLD AND SILVER AMALGAMATING AND WASHING MACHINE COMPANY**

(UNDER "RICKARD AND PAUL'S PATENT")  
 Are prepared to EXECUTE IMMEDIATE ORDERS for the AMALGAMATING MACHINE in fourteen days from receipt of order.

Applications for prices, prospectuses, &c., to be made to the Secretary,  
 MR. H. C. HOUSE,  
 1 and 2, GREAT WINCHESTER BUILDINGS, LONDON, E.C.

**NOTICE.—THE BRITISH, COLONIAL, AND FOREIGN PATENT GOLD AND SILVER AMALGAMATING AND WASHING MACHINE COMPANY** inform the public interested in mining that, it having been RUMOURED that their PATENT AMALGAMATOR is an INFRINGEMENT of an EXISTING PATENT, and that an INJUNCTION has been SERVED upon them in consequence, the SAME being UTTERLY FALSE, they HEREBY GIVE NOTICE that they HAVE MADE, ARE MAKING, and WILL CONTINUE TO MAKE THEIR MACHINES, and PARTIES PROVED to CIRCULATE such UNFOUNDED RUMOURS will be PROCEEDED AGAINST WITH THE UTMOST RIGOUR OF THE LAW.

H. C. HOUSE, Secretary.

**GENERAL MINING COMPANY FOR IRELAND**  
 (LIMITED).

**MAKERS OF ZINC OXIDE.**  
 OFFICES,—29, WESTMORELAND STREET, DUBLIN.  
 MINES AND WORKS, SILVERMINES, COUNTY TIPPERARY.

The Directors beg to intimate to PAINT and COLOUR MAKERS, INDIA RUBBER MANUFACTURERS, SHIPPERS, and the TRADE generally, that they have COMPLETED the ERECTION of WORKS for the MANUFACTURE of ZINC OXIDE, and that they are now producing ZINC WHITE of GREAT EXCELLENCE and PURITY.

Samples and terms shall be forwarded on application.  
 H. C. FOWLER, Secretary.  
 29, Westmoreland-street, Dublin, December 10, 1868.

**STAFFORDSHIRE WHEEL AND AXLE COMPANY**  
 (LIMITED),  
 MANUFACTURERS of RAILWAY CARRIAGE, WAGON, and CONTRACTORS' WHEELS and AXLES, and other IRONWORK used in the CONSTRUCTION of RAILWAY ROLLING STOCK.  
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 MANUFACTURE RAILWAY WAGONS of EVERY DESCRIPTION, for HIRE and SALE, by immediate or deferred payments. They have also wagons for hire capable of carrying 6, 8, and 10 tons, part of which are constructed specially for shipping purposes. Wagons in working order maintained by contract.  
 EDMUND FOWLER, Secy.  
 WAGON WORKS,—SMETHWICK, BIRMINGHAM.  
 \* Loans received on Debenture; particulars on application.

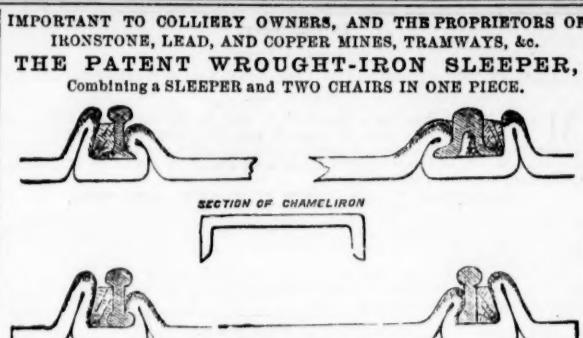
**WILLIAM'S PERRAN FOUNDRY COMPANY,**  
 PERRANARWORTHY, CORNWALL.  
 MANUFACTURERS of STEAM PUMPING and EVERY OTHER KIND of ENGINES, together with BOILERS, PUMP CASTINGS, and MINING TOOLS of every description, of the very best quality. Estimates given for the supply of any amount of machinery.  
 London Agent.—Mr. EDWARD COOKE, 76, Old Broad-street, London, E.C.

**BRITISH, COLONIAL, AND FOREIGN PATENTS,**  
 REGISTRATION OF DESIGNS, COPYRIGHTS, TECHNICAL TRANSLATIONS, DRAWINGS, &c.  
 MICHAEL HENRY,  
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 Mr. HENRY has had especial experience in technical French, and in French Manufacturing and Commercial Matters.  
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 Offices, 68, Fleet-street, E.C., London, corner of and entrance in Whitefriars-street.

Now in the Press.  
**A MINING ATLAS, DESIGNED TO CONVEY COMPLETE INFORMATION CONCERNING THE CHIEF MINING DISTRICTS IN GREAT BRITAIN AND THE UNITED STATES OF AMERICA.**  
 By THOMAS SPARQE,  
 GRESHAM HOUSE, OLD BROAD STREET, LONDON, E.C.  
 The work contains surface plans showing the geological formation of the various districts, and longitudinal and transverse sections of some of the most important mines in the United Kingdom, with observation upon their position, character, and working. Geological and parish maps of Cornwall, Devon, Cardiganshire, and the Isle of Man, showing height of hills, &c., have been prepared with the greatest care. Maps intended to illustrate the progress of mining in North America have been executed with great fulness and punctilious exactitude. A map of the United States and territories shows the divisions of each, with the mining districts of Nevada, Colorado, Idaho, New Mexico, Wisconsin, and the like. Railways connecting the Atlantic and Pacific. Mr. Whitney, Commissioner for the Union to the Paris Exhibition, prepared a map of the great mining region of Colorado for the occasion, and has presented the plates to the author, for this work. A surface map of California shows the position of the mines in that great mining region.  
 The work will embrace explanatory notes, definitions, and illustrations of mining terms—such as shaft, level, cross-cut, sink, stope, end, rise, pitch, &c. The work will contain upwards of fifty maps, plans, and sections.  
 Price, 10s.; by post, 10s. 6d.

**THE NEWCASTLE CHRONICLE AND NORTHERN COUNTIES ADVERTISER.** (ESTABLISHED 1764.)  
 Published every Saturday, price 2d., or quarterly 2s. 2d.  
**THE DAILY CHRONICLE AND NORTHERN COUNTIES ADVERTISER.**  
 Offices, 42, Grey-street, Newcastle-upon-Tyne; 50, Howard-street, North Shields; 195, High-street, Sunderland.

CURE YOURSELF BY THE PATENT SELF-ADJUSTING CURATIVE AND ELECTRIC BELT.—Sufferers from spermorrhœa, nervous debility, painful dreams, &c., can now cure themselves by the only guaranteed remedy in Europe, protected by Her Majesty's great seal.  
 Free for one stamp by H. JAMES, Esq., Percy House, Bedford-square, London.  
 N.B.—MEDICINE AND FEES SUPERSEDED.  
 Reference to the leading Physicians of the day.  
 A TEST GRATIS. SEND FOR DETAILS.



IMPORTANT TO COLLIERY OWNERS, AND THE PROPRIETORS OF IRONSTONE, LEAD, AND COPPER MINES, TRAMWAYS, &c.  
**THE PATENT WROUGHT-IRON SLEEPER,**  
 Combining a SLEEPER and TWO CHAIRS in ONE PIECE.

Among the advantages of the WROUGHT-IRON SLEEPER are—  
 1.—The way can be laid more quickly, and with less manual labour.  
 2.—The channel section of the iron sleeper beds itself more firmly in the ballast, with the most rigid accuracy of gauge.  
 3.—The continued re-laying of rotten or broken wooden sleepers is no longer required.  
 4.—The iron sleeper is cheaper in the long run than the wooden, which is proved by the fact that on the Continent, where the cost of wood is considerably less than in England, the iron sleepers are universally used.  
 5.—All the losses or damages arising from the ordinary system, from the way getting out of gauge, chairs or sleepers breaking, chair fastenings becoming loose and injuring the horses' feet, are avoided.

For further particulars, apply to the Sole Licensees,

**GEORGE HOPPER AND SON,**  
 BRITANNIA IRON WORKS,  
 FENCE HOUSES, DURHAM,  
 IRON FOUNDERS, ENGINEERS, & IRON MANUFACTURERS,  
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 BOLTS AND NUTS, BAR, ANGLE, AND TEE-IRON, RAILS,  
 IRON SCREENS, CAGES, AND COAL TUBS.  
 SMITH WORK AND FORGINGS OF EVERY DESCRIPTION.

**KING AND CO.,**  
**OIL AND TALLOW MERCHANTS,**  
 MANUFACTURERS OF  
 ALL KINDS OF GREASES.  
 ARDWICK OIL WORKS,  
 TIPPING STREET, MANCHESTER.

ESTABLISHED MORE THAN HALF A CENTURY.

**THE TAVISTOCK FOUNDRY, IRONWORKS**  
 AND HAMMER MILLS,  
 which have been carried on for more than half a century by

MESSRS. GILL AND CO.,

and obtained a

HIGH REPUTATION FOR

SHOVELS AND OTHER TOOLS

as well as for

ENGINEERING AND FOUNDRY WORK.

have been purchased by

MESSRS. NICHOLLS, MATHEWS, AND CO.,  
 BEDFORD IRONWORKS, TAVISTOCK.

For thirty years Messrs. NICHOLLS, MATHEWS, and CO., have been the proprietors of the latter works, but have now removed to the

**TAVISTOCK FOUNDRY,**

where, having the advantage of a never-failing stream of water of upwards of 200-horse power, they will have increased facilities for speedily and satisfactorily executing all orders entrusted to their care.

Manufacturers of STEAM ENGINES and BOILERS, on the newest principle; pump work, brass and iron; hammered iron shafts, of all sizes; miners' steel and iron tools.

N.M., AND CO. have had a LARGE EXPERIENCE in PREPARING MACHINERY for FOREIGN MINES, as well as selecting competent mechanics to erect the same.

N.M., AND CO. have always a LARGE STOCK of SECOND HAND MATERIALS.

**COLLINGE'S PATENT SPONGE CLOTHS,**  
 FOR CLEANING STEAM ENGINES, EVERY DESCRIPTION OF MACHINERY, LAMPS, WINDOWS, &c., &c.

Being a woven fabric, they are easily washed, say 20 times, consequently do not cost one-fourth the price of cleaning waste.

TRADE ALLOWANCE MADE TO DEALERS, FACTORS, AND AGENTS.

Samples and prices upon application to—

**DANIEL COLLINGE AND SON,**

1, PEEL STREET, MANCHESTER.

WILTON'S MATHEMATICAL INSTRUMENT ESTABLISHMENT REMOVED

from St. Day to A. JEFFERY'S, CAMBORNE.

W. H. WILTON begs to thank his friends for their very liberal support for many years, and informs them that he has now declined business in England in favour solely of Mr. A. JEFFERY, MATHEMATICAL INSTRUMENT MAKER, CAMBORNE, whom he considers (having been an assistant to him for several years) is in every way capable of creditably maintaining the good name universally awarded to Wilton's instruments.

**A. JEFFERY**

Respectfully begs to inform Mine Managers, Surveyors, Engineers, &c., that having purchased Mr. Wilton's business, and the very valuable acquisitions and appliances belonging thereto, he has enlarged his Mathematical Instrument Manufactury, and is prepared to supply THEODOLITES, DIALS, POCKET DIALS, LEVELS, TRAVERSING and PLAIN PROTRACTORS, CASES OF DRAWING INSTRUMENTS, MEASURING CHAINS AND TAPE, ASSAYERS' SCALES and WEIGHTS, ENGINE COUNTERS, and, in short, every description of Instruments used in SURVEYING, MEASURING, MAPPING, &c.

Repairing in all its branches promptly attended to.

## HEATON'S PATENT.

**THE Langley Mill Steel & Ironworks Company**  
 (LIMITED),

**Langley Mill, Near Nottingham,**

Are now making Cast-Steel suitable for Tools, Taps, Dies, Chisels, &c., &c., Shear Steel, and Iron of a very superior quality, by their direct process, under the superintendence of the Patentee.

The range of quality which this process secures renders the Steel and Iron suitable for almost every purpose to which these metals can be applied. Also, CAST-STEEL CASTINGS of all kinds from PATTERNS or DRAWINGS.

**ORMEROD, GRIERSON, & CO.,**  
 ST. GEORGE'S IRONWORKS, HULME, MANCHESTER,

Have the largest assortment in the Trade of PATTERNS,

**SPUR WHEELS, BEVEL WHEELS, MITRE WHEELS.**

WITH TEETH CUT BY MACHINERY. Also,

**FLY WHEELS, DRIVING PULLEYS, AND DRUMS**

CAN BE SUPPLIED BORED AND TURNED, IF REQUIRED.

CATALOGUES ON APPLICATION.

ALSO, MANUFACTURERS OF BLAST ENGINES, COLLIERY AND ALL OTHER DESCRIPTIONS OF STATIONARY ENGINES AND BOILERS, MILL GEARING, &c.

## BICKFORD'S PATENT SAFETY FUSE

Obtained the PRIZE MEDALS at the "ROYAL EXHIBITION" of 1851; at the "INTERNATIONAL EXHIBITION" of 1862, in London; at the "IMPERIAL EXPOSITION" held in Paris, in 1855; at the "INTERNATIONAL EXHIBITION," in Dublin, 1865; and at the "UNIVERSAL EXHIBITION," in Paris, 1867.

**BICKFORD, SMITH, AND CO.,** of TUCKINGMILL, CORNWALL, MANUFACTURERS of PATENT SAFETY-FUSE, having been informed that the name of their firm has been attached to fuse not of their manufacture, beg to call the attention of the trade and public to the following announcement:—  
 BICKFORD, SMITH, AND CO. CLAIM SUCH TWO SEPARATE THREADS AS THEIR TRADE MARK.

**THOMAS TURTON AND SONS,** MANUFACTURERS OF CAST STEEL for PUNCHES, TAPS, and DIES, TURNING TOOLS, CHISELS, &c.

CAST STEEL PISTON RODS, CRANK PINS, CONNECTING RODS, STRAIGHT and CRANK AXLES, SHAFTS and FORGINGS of EVERY DESCRIPTION.

DOUBLE SHEARSTEEL, T. TURTON SPRING STEEL, EDGES TOOLS MARRED GERMAN STEEL, WM. GREAVES & SON

Locomotive Engine, Railway Carriage and Wagon Springs and Buffers.

**SHEAF WORKS AND SPRING WORKS, SHEFFIELD.**  
 LONDON WAREHOUSE, 35, QUEEN STREET, CANNON STREET, CITY, E.C.

Where the largest stock of steel, files, tools, &c., may be selected from.

**HESLOP AND WILSON,** IRON, METAL, and GENERAL MERCHANTS, AND ENGINEERS.

40, DEAN STREET, NEWCASTLE-ON-TYNE.

EVERY DESCRIPTION OF MACHINERY, ENGINEERS' TOOLS, &c., Portable and stationary ENGINES, MILLS, PUMPS, TURBINES, PATENT FANS, AGRICULTURAL MACHINERY, and IMPLEMENTS, STEEL TYRES, RAILS, &c.

COLLIERY STORES—Ropes, Spun Yarn, Waste, Leather, Shovels, Picks, Nails, Chain, Bar-Iron and Plates, &c. Solid Cast-steel Sinker's Hammers and Picks. Brass and Iron Tubes, Nuts, Bolts, Rivets, &c.

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Price-book on application.

**DYNAMITE, OR NOBEL'S PATENT SAFETY BLASTING POWDER.**

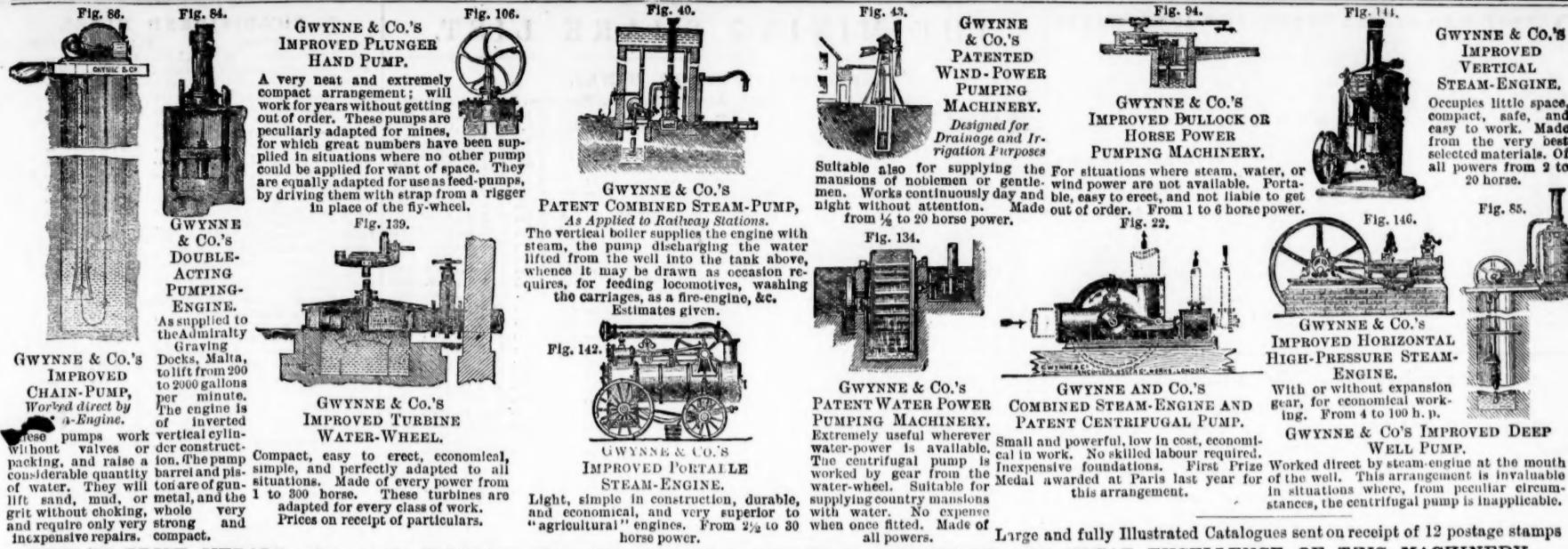
DYNAMITE is the SAFEST and most POWERFUL BLASTING COMPOUND in general use. Accidents are almost impossible, as it is only exploded by a strong percussion cap. It will not explode from a spark or concussion. If set fire to, it burns quietly and harmlessly away, without smoke or any explosion. Prepared in cartridges for mines and underground workings. Sold by—

WEBB AND CO., CARNARVON,

Sole consignees in England from the Patentee and Manufacturer.

**WILLIAM HANN AND SON** beg to offer to SUPPLY COLLIERY OWNERS, and the public generally, with their PATENT SAFETY LAMPS,

Which have been proved INEXPLOSIVE in the highest obtainable current of gas, of 48 ft. per second. No. 1 weighs 24 ozs., is simple in its construction, burns with a steady and nearly uniform flame in moderate currents, gives a good light, and is in every respect a practicable lamp. Price, 9s. each; if in quantities of a dozen or upwards, 8s. 6d. each, delivered free. Orders received by—



Gwynne &amp; Co.'s IMPROVED

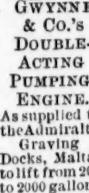
CHAIN-PUMP,

Worked direct by a-Engine.



Gwynne &amp; Co.'s IMPROVED PLUNGER HAND PUMP.

A very neat and extremely compact arrangement; will work for years without getting out of order. These pumps are peculiarly adapted for mines, for which great numbers have been supplied in situations where no other pump could be applied for want of space. They are equally adapted for use as feed-pumps, by driving them with strap from a rigger in place of the fly-wheel.



Gwynne &amp; Co.'s DOUBLE-ACTING PUMPING ENGINE.

As supplied to the Admiralty Graving Docks, Malta, to lift from 200 to 2000 gallons per minute.

The engine is of inverted vertical cylinder and barrel and piston are of gun-metal, and the whole very strong and compact.

These pumps work without valves or packing, and raise a considerable quantity of water. They will lift sand, mud, or grit without choking, and require only very inexpensive repairs.

Gwynne &amp; Co.'s IMPROVED TURBINE WATER-WHEEL.

Compact, easy to erect, economical, simple, and perfectly adapted to all situations. Made of every power from 1 to 300 horse. These turbines are adapted for every class of work. Prices on receipt of particulars.

## TO PREVENT MISTAKES, PLEASE ADDRESS IN FULL—

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IMMENSE SAVING OF LABOUR.

TO MINERS, IRONMASTERS, MANUFACTURING CHEMISTS, RAILWAY COMPANIES, EMERY AND FLINT GRINDERS, MCADAM ROAD MAKERS, &amp;c., &amp;c.

## BLAKE'S PATENT STONE BREAKER,

OR ORE CRUSHING MACHINE,

FOR REDUCING TO SMALL FRAGMENTS ROCKS, ORES, AND MINERALS OF EVERY KIND.

is rapidly making its way to all parts of the globe, being now in profitable use in California, Washoe, Lake Superior, Australia, Cuba, Chili, Brazil, and throughout the United States and England. Read extracts of testimonials—

*The Parrys Mines Company, Parrys Mines, near Bangor, June 6.—We have had one of your stone breakers in use during the last twelve months, and Captain Morcom reports most favourably as to its capabilities of crushing the materials to the required size, and its great economy in doing away with manual labour.* JAMES WILLIAMS.

H. R. Marsden, Esq.

*Eton Emery Works, Manchester.—We have used Blake's patent stone breaker made by you, for the last 12 months, crushing emery, &c., and it has given every satisfaction. Some time after starting the machine a piece of the movable jaw's about 20 lbs. weight, chilled cast-iron, broke off, and was crushed in the jaws of the machine to the size fixed for crushing the emery.* THOS. GOLDSWORTHY & SONS.

*Alkali Works, near Wednesbury.—I at first thought the outlay too much for so simple an article, but now think it money well spent.* WILLIAM HUNT.

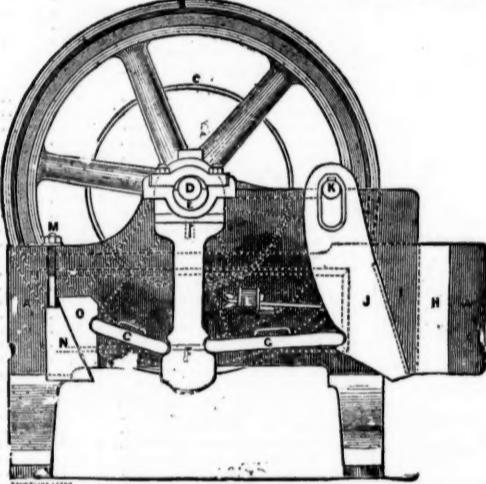
*Welsh Gold Mining Company, Dolgelly.—The stone breaker does its work admirably, crushing the hardest stones and quartz.* WM. DANIEL.

*Our 15 by 7 in. machine has broken 4 tons of hard whinstone in 20 minutes, for fine road metal, free from dust.* MESSRS. ORD AND MADDISON, Stone and Lime Merchants, Darlington.

*Kirkless Hall, near Wigan.—Each of my machines breaks from 100 to 120 tons of limestone or ore per day (10 hours), at a saving of 4d. per ton.* JOHN LANCASTER.

*Ovoca, Ireland.—My crusher does its work most satisfactorily. It will break 10 tons of the hardest copper ore stone per hour.* WM. G. ROBERTS.

*General Fremont's Mines, California.—The 15 by 7 in. machine effects a saving of the labour of about 30 men, or \$75 per day. The high estimation in which we hold your invention is shown by the fact that Mr. Park has just ordered a third machine for this estate.* SILAS WILLIAMS.



For circulars and testimonials, apply to—

H. R. MARSDEN, SOHO FOUNDRY,

MEADOW LANE, LEEDS,

ONLY MAKER IN THE UNITED KINGDOM.

## CAUTION!

BLAKE'S PATENT STONE BREAKER,  
In Chancery.

BLAKE v. ARCHER, NOVEMBER 12, 1867.

His Honour the Vice-Chancellor WOOD having found a VERDICT in FAVOUR of the PLAINTIFFS in the above Cause, establishing the VALIDITY of BLAKE'S PATENT, and made a DECREE for an INJUNCTION to RESTRAIN the DEFENDANTS, MESSRS. THOMAS ARCHER and SON, of Dunston Engine-Works, near Gateshead-on-Tyne, from INFRINGING such PATENT, and ordering them to pay to the Plaintiffs the costs of the Suit.

ALL PERSONS are hereby CAUTIONED against MANUFACTURING, SELLING, or USING any STONE BREAKERS similar to BLAKE'S, which have not been manufactured by the Plaintiffs. Application will forthwith be made to the Court of Chancery for INJUNCTIONS AGAINST ALL PERSONS who may be found INFRINGING BLAKE'S PATENT after this notice.

SOLE MAKER IN ENGLAND,

H. R. MARSDEN, SOHO FOUNDRY, MEADOW LANE, LEEDS.

MUSSET'S

## TITANIC CAST STEEL,

FOR

BORERS, ROCK-DRILLING MACHINES, LATHE TOOLS, DRILLS, CHISELS, TAPS AND DIES, &c., &c. SOLID CAST-STEEL HAMMERS AND SLEDGES, FILES, &c.

SOLE MANUFACTURERS,

TITANIC STEEL AND IRON COMPANY, LIMITED,  
COLEFORD, GLOUCESTERSHIRE.

AGENTS FOR SCOTLAND,—

MESSRS. JOHN DOWNIE AND CO., 1, ROYAL BANK PLACE, GLASGOW.

Where useful samples may be obtained.

PATENT FLEXIBLE TUBING,  
AND BRATTICE CLOTH FOR MINES  
MANUFACTURED BY

ELLIS LEVER,

WEST GORTON WORKS, MANCHESTER.



Gwynne &amp; Co.'s IMPROVED VERTICAL STEAM-ENGINE.

Occupies little space, compact, safe, and easy to work. Made from the very best selected materials. Of all powers from 2 to 20 horse.

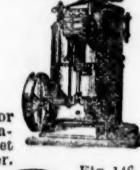


Fig. 144.

Gwynne &amp; Co.'s IMPROVED HORIZONTAL HIGH-PRESSURE STEAM-ENGINE.

With or without expansion gear, for economical working.

From 4 to 100 h.p.

Gwynne &amp; Co.'s IMPROVED DEEP WELL PUMP.

Worked direct by steam-engine at the mouth

of the well. This arrangement is invaluable

in situations where, from peculiar circumstances, the centrifugal pump is inapplicable.

Fig. 85.

Large and fully Illustrated Catalogues sent on receipt of 12 postage stamps

Fig. 22.

Gwynne &amp; Co.'s IMPROVED BULLOCK OR HORSE POWER PUMPING MACHINERY.

Designed for Drainage and Irrigation Purposes

Suitable also for supplying mansions of noblemen or gentle-

men. Works continuously day and night without attention. Made out of order.

From 1/2 to 20 horse power.

Estimates given.

Fig. 134.

Gwynne &amp; Co.'s PATENT COMBINED STEAM-PUMP,

As Applied to Railway Stations.

The vertical boiler supplies the engine with steam, the pump discharging the water lifted from the well into the tank above,

whence it may be drawn as occasion requires, for feeding locomotives, washing the carriages, as a fire-engine, &amp;c.

Estimates given.

Fig. 142.

Gwynne &amp; Co.'s PATENT WATER POWER PUMPING MACHINERY.

Extremely useful wherever water-power is available.

The centrifugal pump is worked by gear from the water-wheel. Suitable for

supplying country mansions with water. No expense

when once fitted. Made of all powers.

Fig. 136.

Gwynne &amp; Co.'s PATENT PORTABLE STEAM-ENGINE.

Light, simple in construction, durable, and economical, and very superior to

"agricultural" engines. From 2½ to 30

horse power.

Fig. 146.

Gwynne &amp; Co.'s IMPROVED HORIZONTAL HIGH-PRESSURE STEAM-ENGINE.

With or without expansion gear, for economical working.

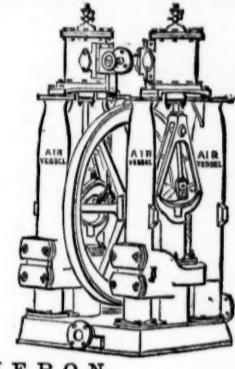
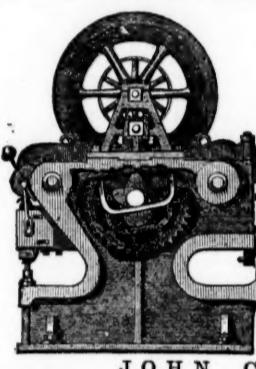
From 4 to 100 h.p.

Gwynne &amp; Co.'s IMPROVED DEEP WELL PUMP.

Worked direct by steam-engine at the mouth

of the well. This arrangement is invaluable

in situations where, from peculiar circumstances, the centrifugal pump is inapplicable.



JOHN CAMERON,

MAKER OF  
STEAM PUMPS, PORTABLE ENGINES, PLATE BENDING ROLLERS,  
BAR AND ANGLE IRON SHEARS, PUNCHING AND SHEARING  
MACHINES, PATENTEE OF THE DOUBLE CAM LEVER  
PUNCHING MACHINE, BAR SHEARS, AND RAIL  
PUNCHING MACHINES,

EGERTON STREET IRON WORKS,  
HULME, MANCHESTER.

MACNIVEN AND CAMERON'S  
REOWNED PENS,  
ON A NEW PRINCIPLE.

"Macniven and Cameron have hit upon the very perfection of penmaking.  
They come as a boon and a blessing to men,  
The 'Pickwick,' the 'Owl,' and the 'Waverley Pen.'

"They seem to be endowed with the magician's art."

"N. Bucks Advertiser."

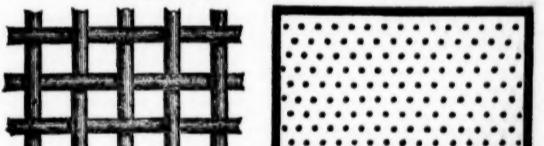
"The Owl pen is suitable for fine writing: it is, for  
excellence, the ladies' pen."

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SOLD EVERYWHERE. SAMPLE BOX, ASSORTED, BY POST, 1s. 2d.

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STRONG WIREWORK.



STRONG WIREWORK, the cross wires equally bent; also BEST STAMP GRATES, both of iron and copper, and punched copper plates DITTO TUBD. All the above promptly supplied at

W. ESCOTT'S MINING MATERIAL DEPOT,  
TAVISTOCK, DEVON.



By a special method of preparation, this leather is made solid, perfectly close in texture, and impermeable to water; it has, therefore, all the qualifications essential for pump buckets, and is the most durable material of which they can be made. It may be had of all dealers in leather, and of

I. AND T. HEPBURN AND SONS,  
TANNERS AND CURRIERS, LEATHER MILLBAND AND HOSE PIPE  
MANUFACTURERS,

LONG LANE, SOUTHWARK, LONDON.

Prize Medals, 1851, 1855, 1862, for  
MILLBANDS, HOSE, AND LEATHER FOR MACHINERY PURPOSES.

H. TWENTY AND MANLY VIGOUR.—A Medical Man, of Twenty Years' experience in the treatment of Nervous Debility, Spasmorrhœa, and other affections which are often acquired in early life, and unfit sufferers for marriage, and other social duties, has published a book giving the FULL BENEFIT of his LONG EXPERIENCE, GRATIS, with plain directions for the recovery of health and strength. A single copy sent to any address on receipt of one stamp.

Address to the "Secretary," Institute of Anatomy, Birmingham.

Just published, post free for three stamps.

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By Dr. WATSON (of the Lock Hospital), F.S.A., F.R.A.S., College of  
Physicians and Surgeons.

SELF-CURE OF NERVOUS AND PHYSICAL DEBILITY,  
Loss of Manhood, Impediments to Marriage, &c., SHOWING THE MEANS  
WHEREBY CERTAIN DISQUALIFICATIONS, which mar the happiness of  
Married Life, may be SPEEDILY REMOVED.

Consultations daily from 11 till 2, and 5 till 8; Sundays, 10 till 1.

Enclose three stamps and address Dr. WATSON, No. 1, South-crescent, Bed ford-square, London, W.C.

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WONDERFUL MEDICAL DISCOVERY,  
demonstrating the true causes of Nervous, Mental, and Physical Debility, lowness of Spirits, Indigestion, WANT OF ENERGY, PREMATURE DECLINE, with plain directions for PERFECT RESTORATION TO HEALTH AND VIGOUR. WITHOUT MEDICINE.

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ADELPHI CHAMBERS, JOHN STREET, ADELPHI, W.C.  
This AGENCY has every FACILITY for NEGOTIATING all BUSINESS in connection with Stock and Shares in Railways, Banks, Insurance, Gas, Mining, and Financial Companies.

LOANS GRANTED on STOCKS and SHARES.  
References exchanged  
Office hours, from 10 till 4.

FOR SALE—  
10 Chilverton, £2 19s.  
15 Chilverton Moor, £3 17s.  
50 Drake Walls, 20s. 9d.  
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20 Frank Mills, £3 19s.  
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25 Great So. Tolgus, 26s.  
10 Great Vor, £17 12s 6d.  
5 Gt. Laxey, £19 7s 6d.  
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20 New Lovell, £2 11s.  
40 Wh. Uny, £3 12s. 6d.  
5 W. Butler, £18s.

SPECIAL BUSINESS in Alabrama, and Cornwall Hematite Co. (Limited).  
MINING—All interested in this class of investment should consult this Agency, and apply for their selected list, which will bear the strictest investigation.  
CLIENTS having shares for sale may use this advertisement as a medium, by sending particulars not later than Thursday in each week.

CHINA-CLAY.—Consumers of this article supplied at the lowest possible price.

F. LIMMER, Secretary.

## Grand Prix (Gold Medal)—Paris Exhibition, 1867.

SHAFT SINKING  
THROUGH WATER-BEARING UPPER STRATA,  
WITHOUT USE OF PUMPING MACHINERY.  
CHAUDRON'S PATENT SYSTEM is successful, even in cases previously abandoned on account of overpowering volumes of water.

EXPENDITURE REDUCED BY EIGHTY PER CENT.

No leakages, no repairs. Agents wanted.

HENRY SIMON, C.E., MANCHESTER.

FOR SALE.  
LOCOMOTIVE, PUMPING, AND WINDING ENGINES  
By leading builders, and at greatly reduced prices;  
STEAM CRANES, BOILERS, CASTINGS, WAGONS (on sale or hire);  
RAILS, CHAIRS, POINTS AND CROSSINGS, SLEEPERS, WIRE AND HEMP  
ROPES, and every description of RAILWAY and MINING PLANT  
(new and secondhand).

Particulars and quotations on application to—  
T. E. MINSHALL,  
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COPPER ORN WHARFINGERS,  
SHIP BROKERS AND COAL EXPORTERS,  
METAL AND GENERAL COMMISSION AGENTS,  
SWANSEA.

ELFORD, WILLIAMS, and Co. having erected an assay office, and engaged the services of a practical Cornish assayer, who will devote his whole time to this branch of their business, they are now in a position to make correct assays of silver, copper, and other mineral ores, on the most moderate terms.

NICKEL AND COBALT REFINING, AND GERMAN SILVER WORKS, 16, OOZEL STREET NORTH, BIRMINGHAM.  
STEPHEN BARKER begs to inform the Trade that he has the following articles for sale:—REFINED METALLIC NICKEL.

REFINED METALLIC BISMUTH.

OXIDE OF COBALT.

GERMAN SILVER—IN INGOTS, SHEET, WIRE, &c.

NICKEL AND COBALT ORES PURCHASED.

G OLDENHILL, COBALT, NICKEL, COLOUR, BORAX  
AND CHEMICAL WORKS,  
NEAR STOKE-UPON-TRENT, STAFFORDSHIRE.  
JOHN HENSHALL WILLIAMSON, MANUFACTURER AND REFINER,  
Purchaser of Borate of Lime and Tincal.

THE NEW PRINCE OF WALES SLATE COMPANY  
(LIMITED).—By Acts 1862 and 1867.  
Capital £50,000, in 10,000 shares of £5 each.

£1 per share to be paid on application, and £1 10s. on allotment.

Upwards of 5000 shares are already appropriated.

DIRECTORS.

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ROBERT HIRST, Esq., Park-place, Leeds.

JAMES MAW, Esq., Stratford, Essex.

WILLIAM TUXTFORD, Esq., 106, Upper Thames-street, London.

(Directors of the Great Laxey Mining Company).

BANKERS—METROPOLITAN BANK (Limited), Cornhill.

SECRETARY AND GENERAL MANAGER—THOMAS HARVEY, Esq.

OFFICES.

ST. CLEMENT'S HOUSE, ST. CLEMENT'S LANE, E.C.

The directors are now prepared to receive applications for 2000 of the unappropriated shares on the terms above stated.

This is in no respect a speculation, but an established business, and a safe and profitable investment for capital. It may be confidently affirmed that no slate quarry was ever offered to the public under such favourable circumstances, and the directors invite those who are not already aware of its high position to investigate its merits.

The slate is known throughout the kingdom, and is distinguished for every excellence of colour, purity, lightness, and strength, and is unsurpassed in all respects by any other slate in the Principality. The quarry has already produced several thousand pounds worth of slate, is in full working order, and is amply provided with every requisite in plant and machinery for carrying on the most extensive business. Slabs of which there are thousands now on the quarry, can be supplied to any extent. The buildings and sawing and planing machinery are in perfect order, and of the best and most improved description. Less than £2000 will now complete the incline, and bring the quarry into a large monthly profit. The local manager states that slates and slabs of the value of £250 per month can be immediately produced, and the quarry is yet only in its infancy. Eight galleries, each 18 yards in depth, have been opened, and can be worked to an extreme depth of 300 yards without any lifting power whatever. The tip for rubbish is unlimited—in fact, it is not too much to say that, considered in all its aspects, no such quarry has been opened in Wales during the present century. There is abundance of water power for sawing and planing. The slates have been shipped from Carnarvon, or sent by rail to all parts.

Two of the directors represent some of the largest quarries in Wales, and together with the general manager, hold between them nearly 2000 shares. All rents and royalties have been purchased by the company. The property is upwards of a mile square, and held on a lease for 40 years. The company hold under an agreement dated 14th September, 1868, between themselves and F. B. Smart and L. H. Hammack. There are barracks for 100 men, provided with beds, stoves, and every requisite.

Applications for forms, prospectuses, and shares may be addressed to the Secretary, at the offices, St. Clement's House, St. Clement's-lane, London, E.C.

NEW ZEALAND QUARTZ CRUSHING AND GOLD MINING COMPANY (LIMITED).

In consequence of IMPORTANT INFORMATION expected from the local agent of this company by the mail of the 17th instant, the Directors propose to KEEP THE SHARE LIST OPEN until that date, when the ALLOTMENT will TAKE PLACE according to priority of application.

Prospectuses, forms, and full information can be obtained by applying to the Secretary, 28, Moorgate-street, City.

JOSEPH SIMPSON, Secretary.

CONSOLIDATED GOLD MINES.

WINTER'S FREEHOLD GOLD MINING COMPANY (LIMITED).

The TIME for RECEIVING APPLICATIONS FOR SHARES in this company has been EXTENDED to TUESDAY, the 4th of May next (the limit fixed by the Power of Attorney under which the Agent in London is acting), when the SHARE LIST will be FINALLY CLOSED.

By order, THOMAS DICKER, Secretary.

4, Royal Exchange-avenue, E.C., April 28, 1869.

BRAGANZA GOLD MINING COMPANY (LIMITED).

Notice is hereby given that the LIST OF APPLICATIONS FOR SHARES will be CLOSED on WEDNESDAY, the 5th May, for LONDON: and THURSDAY, the 6th of May, for the COUNTRY.

Prospectuses, with maps and full particulars, and forms of application for shares, may be obtained of the secretary, or of Messrs. G. BURNARD and Co., 69, Lombard-street.

WILLIAM EDWARDS, Secretary.

No. 4, Coleman-street-buildings, Moorgate-street, 24th April, 1869.

BRITANNIA LIFE ASSURANCE AND INVESTMENT COMPANY.

(LIMITED).

CHIEF OFFICE,—1, LANCASTER PLACE, STRAND, LONDON.

This company has inaugurated a NEW PLAN of POPULAR ASSURANCE for miners, by forming a MINERS' SICK AND ACCIDENT FUND. Policies will be issued without respect to age at a uniform quarterly premium of 5s.

Managers of mines and other public works are earnestly requested to appoint correspondents in each of their works for enrolling members.

Apply, for further information, to—

PERCIVAL HINDMARSH, Secretary.

## THE MINING SHARE LIST.

## BRITISH DIVIDEND MINES.

Shares.	Mines.	Paid.	Last Pr.	Business.	Total divs.	Per share.	Last paid.
1500 Alderley Edge, c, Cheshire*	10 0 0 ..	..	..	10 6 8s. 0	5 0	Jan. 1869	1869
200 Botallack, t, c, St. Just	91 5 0 ..	250	240 250	528 5 0 ..	10 0	Feb. 1869	1869
4000 Brookwood, c, Buckfastleigh	11 11 0 ..	..	..	0 12 6s. 0	2 6	Aug. 1868	1868
1000 Bronfloyd, t, Cardigan*	12 0 0 ..	..	..	11 9 0 ..	0 12 0	April 1869	1869
509 Bwlch Consols, s-l, Cardigan	4 0 0 ..	..	..	0 5 0 ..	5 0	June 1868	1868
6400 Cashwell, t, Cumberland*	23 10 0 ..	..	..	0 3 0 ..	0 1 6	Aug. 1868	1868
916 Cargoll, s-l, Newlyn	15 5 7 ..	20	..	16 8 0 ..	0 10 0	April 1869	1869
1280 Chanticleer, t, Flint	0 7 8 ..	..	..	0 1 0 ..	0 6	Nov. 1868	1868
2450 Cook's Kitchen, c, Illogan	19 14 9 ..	16	13 1/4 14 1/4	2 4 6 ..	7 6	April 1869	1869
509 Creagbraes and Penkevill, t, c	..	..	..	2 5 0 ..	1 5 0	April 1869	1869
867 Cwm Erynn, t, Cardiganshire*	7 10 0 ..	..	..	3 0 8 ..	0 10 0	April 1869	1869
128 Cymwstith, s-l, Durham	80 0 0 ..	..	..	385 10 0 ..	2 0 0	Feb. 1869	1869
280 Derwent Mines, s-l, Durham	90 0 0 ..	..	..	177 0 0 ..	2 10 0	July 1868	1868
1024 Devon Gt. Consols, c, Tavistock†	1 0 0 ..	260	250 260	1128 0 0 ..	4 0 0	Mar. 1869	1869
656 Ding Dong, c, Gylval†	49 14 6 ..	25	..	2 0 ..	1 10 0	Mar. 1869	1869
358 Dolcoath, c, t, Camborne	128 17 6 ..	480	475 500	884 10 0 ..	10 0	April 1869	1869
6144 East Caradon, c, St. Cleer	2 14 6 ..	7 1/4	7 1/4	14 11 6 ..	2 0 2	July 1867	1867
300 East Darren, t, Cardiganshire	32 0 0 ..	..	..	166 10 0 ..	2 0 0	Mar. 1869	1869
122 East Pool, t, c, Pool, Illogan	24 5 0 ..	320	..	457 10 0 ..	5 0 0	Mar. 1869	1869
1900 East Wheal Lovell, t, Wendron	3 9 0 ..	9	..	4 11 6 ..	0 10 0	Jan. 1869	1869
2800 Foxdale, t, Isle of Man*	25 0 0 ..	..	..	73 0 ..	0 10 0	April 1869	1869
5000 Frank Mills, t, Christow	28 18 6 ..	4	..	3 9 6 ..	0 4 0	Feb. 1869	1869
3550 Gawton, c, Tavistock	3 10 6 ..	..	..	0 3 0 ..	0 3 0	July 1868	1868
15000 Great Laxey, t, Isle of Man*	4 0 0 ..	19 1/2	19 20	10 5 0 ..	0 10 0	Mar. 1869	1869
3000 Great Northern Manganese*	5 0 0 ..	5 1/2	..	..	5 p.c.t.	July 1869	1869
5000 Great Wheat Vor, t, c, Helston†	40 0 0 ..	18 1/2	18 1/4	14 1 0 ..	0 5 0	Mar. 1869	1869
1024 Herodactyl, t, near Illogan†	18 0 0 ..	46	44 45	49 10 0 ..	1 10 0	Feb. 1869	1869
165 Levant, t, St. Just	10 8 1 ..	..	..	1099 0 ..	4 0 0	Jan. 1869	1869
400 Libshore, t, Cardiganshire	18 15 0 ..	..	..	515 0 ..	2 0 0	Mar. 1869	1869
3000 Maes-y-Safn, t, Flint	20 0 0 ..	..	..	4 0 ..	0 5 0	Oct. 1868	1868
9000 Marke Valley, c, Cardigan	4 10 6 ..	9	..	5 4 0 ..	0 5 0	April 1869	1869
3000 Miner's Boundary, t, Wrexham*	2 1 0 0 ..	..	..	0 13 0 ..	0 3 0	Mar. 1869	1869
18000 Mining Co. of Ireland, t, c, l, cl.	7 0 0 ..	..	..	248 10 0 ..	5 0 0	Feb. 1869	1869</